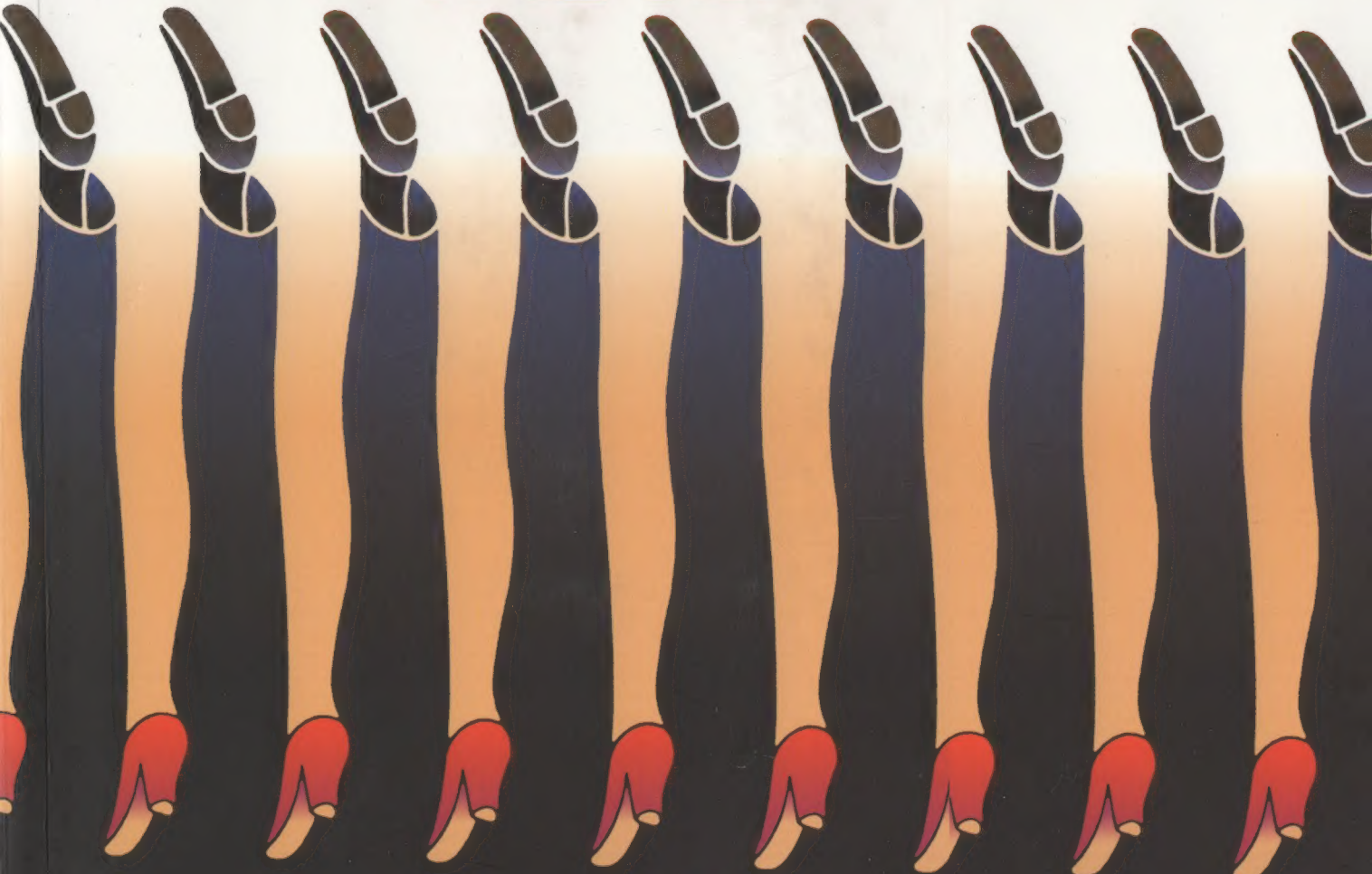
THE ULTIMATE BOOK OF OPTICAL ILLUSIONS



Al Seckel

The Ultimate Book of Optical Illusions

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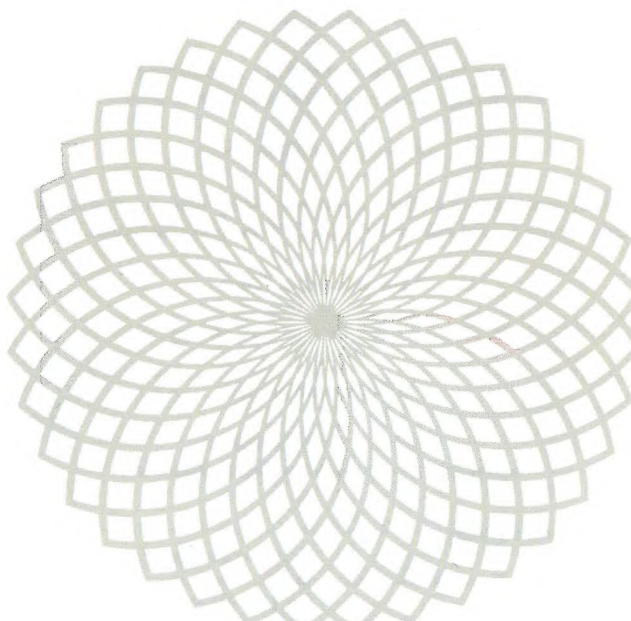

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INTRODUCTION

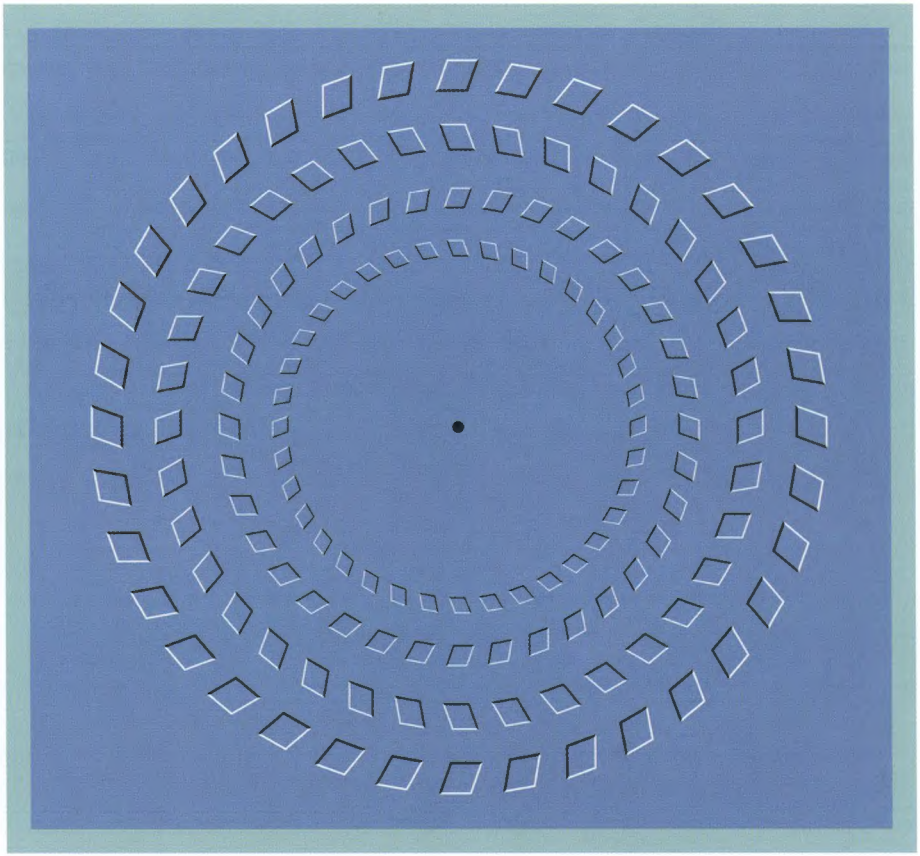
Prepare to be utterly amazed and dumbstruck, because inside this volume, you will find many of the world's most powerful optical illusions. In fact, these illusions are SO powerful, you will have a very hard time believing the difference between what your mind knows and what it perceives. In most cases, you will not be able to stop yourself from being tricked, even though you fully know that you are being tricked!

The illusions in this book have been grouped into the categories: Action Optical Illusions, Ambiguous Optical Illusions, Geometric Optical Illusions, and Impossible Optical Illusions.

Although in some sense, all the illusions in this book are puzzlers, they are not an intelligence test. These illusions are all meant to be fun! Share them with your friends and watch how they won't believe their own eyes.

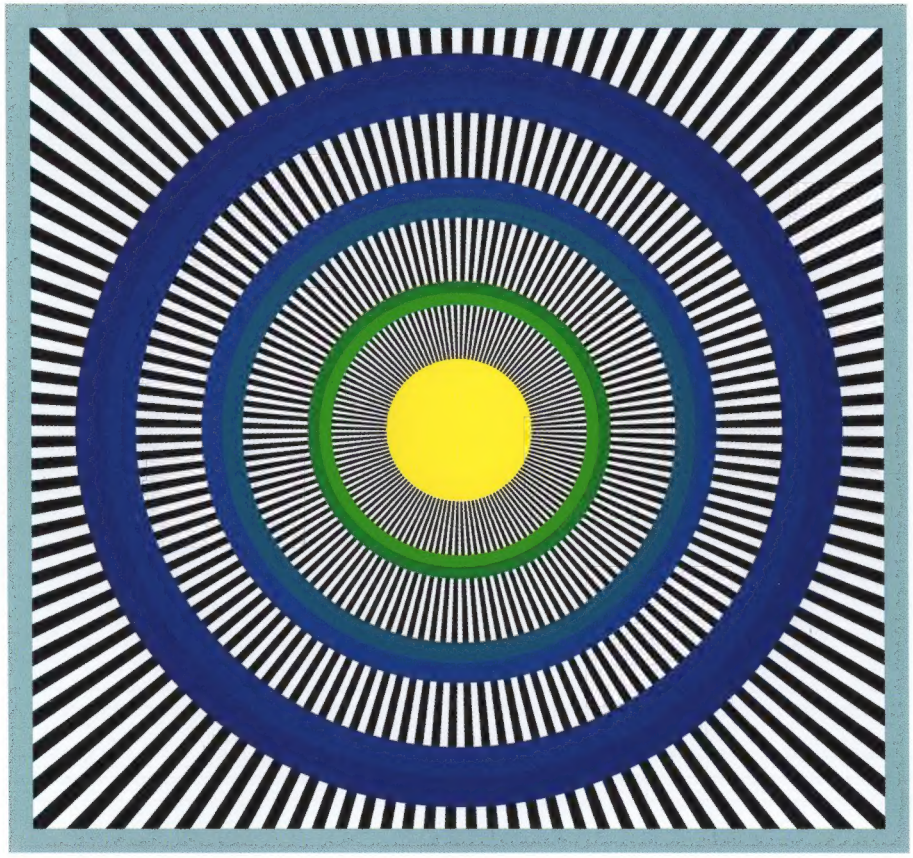
—Al Seckel

The Pinna-Brelstaff Revolving Circles Illusion



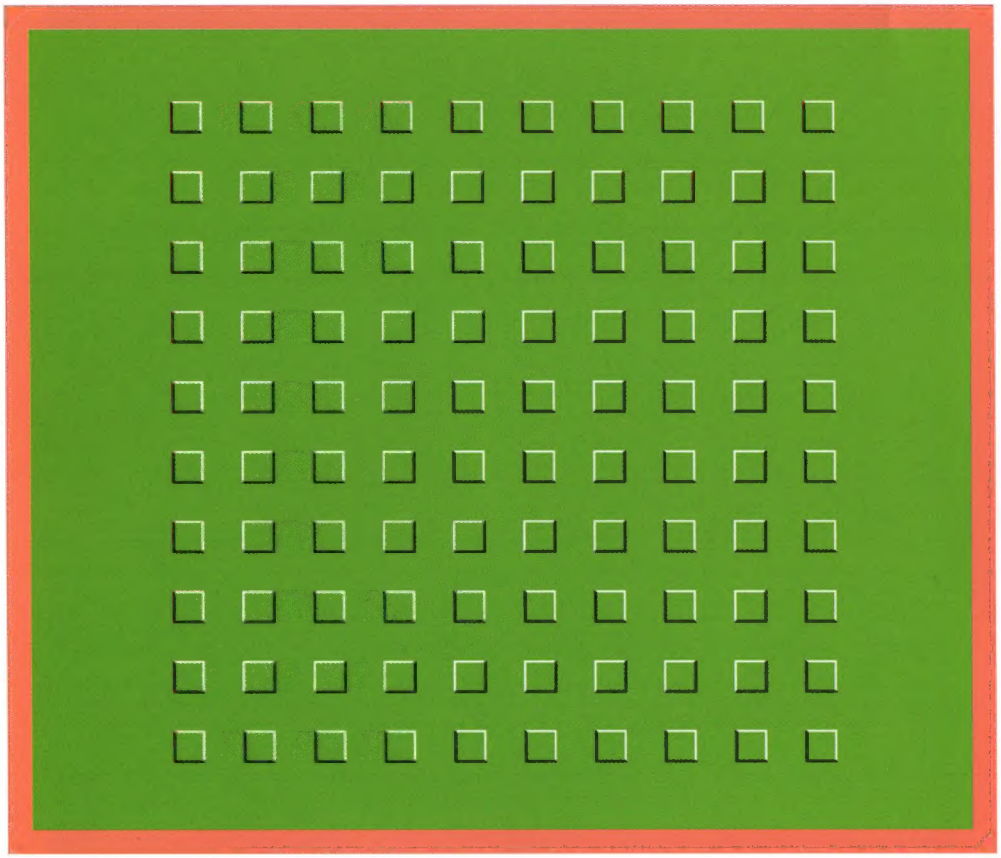
Stare at the center of the image and slowly move your head towards the page, and then away from it. The circles should counter-rotate. When you move your head away from the page, both motions reverse direction, reversing the direction of the illusion.

Leviant's Enigma



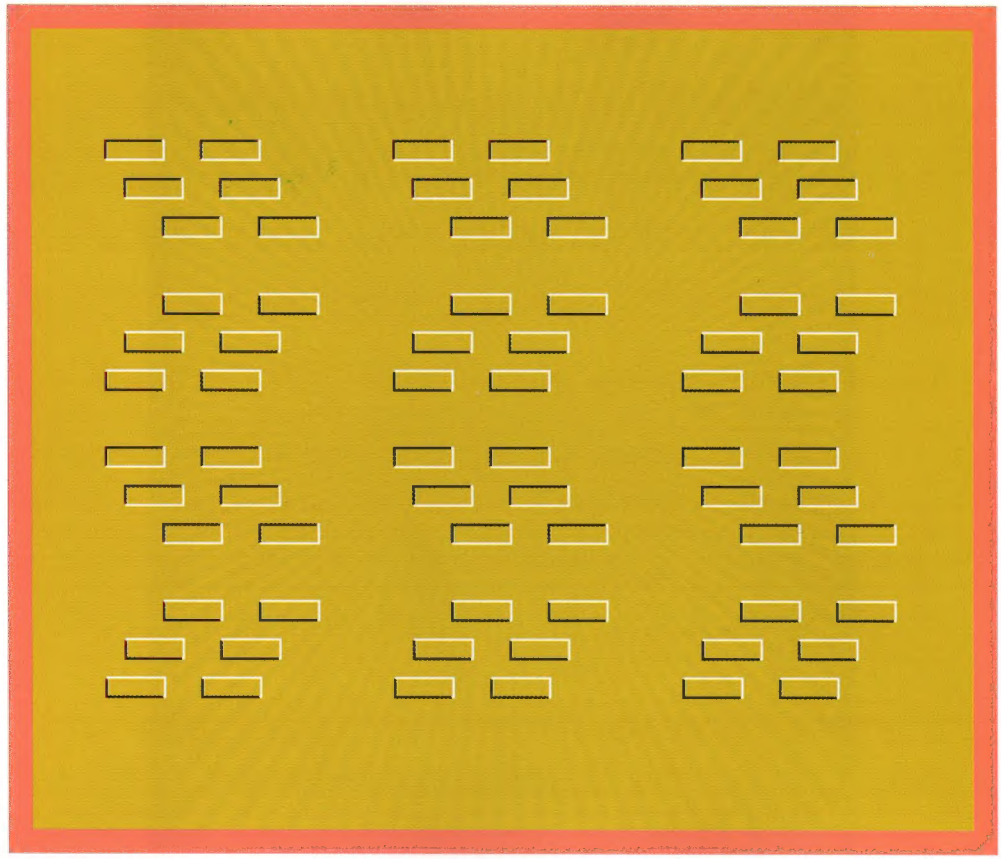
If you stare at the yellow circle, you will perceive a white swirling motion within the rings. If you stare at it long enough, the streams will reverse direction.

Pinna's Deforming Square Illusion



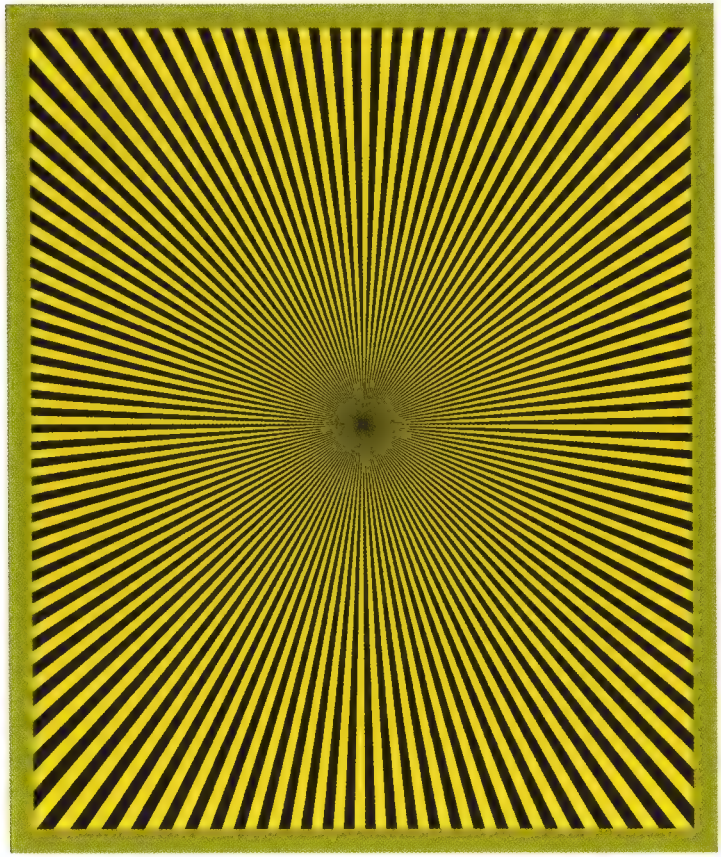
Slowly move this image in an irregular manner and the perfect squares will appear to deform.

Kitaoka's Spa Illusion



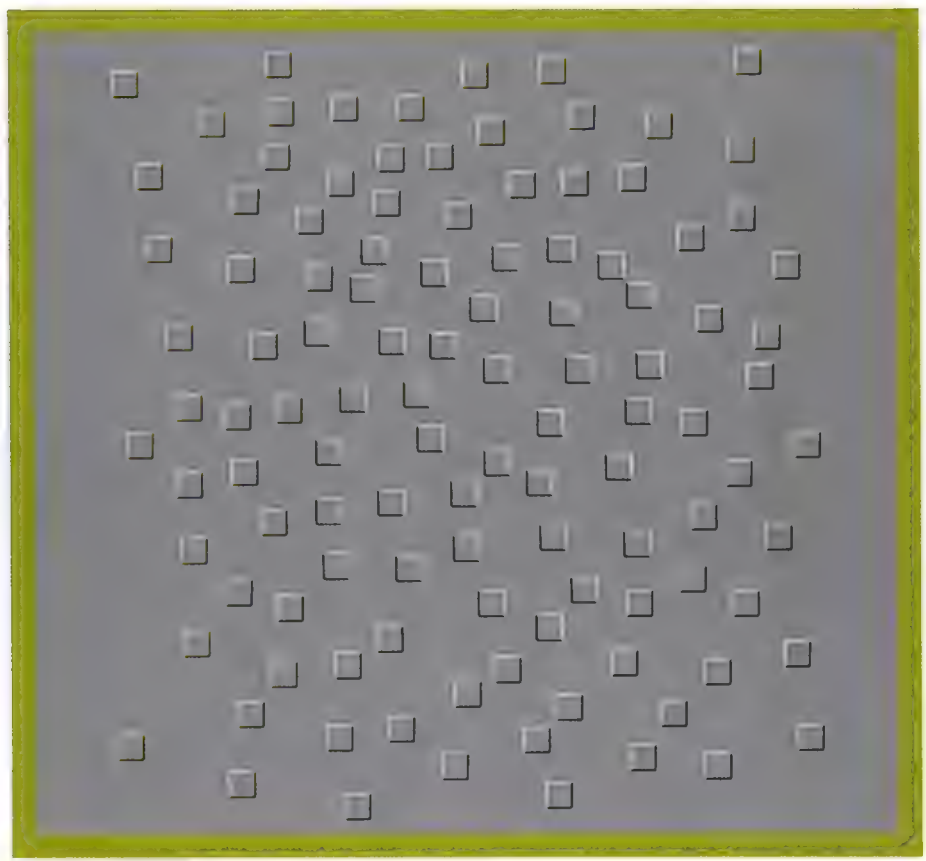
Slowly move this image up and down, and the little rectangles will appear to move with respect to each other.

MacKay's Figure of Eight Illusion



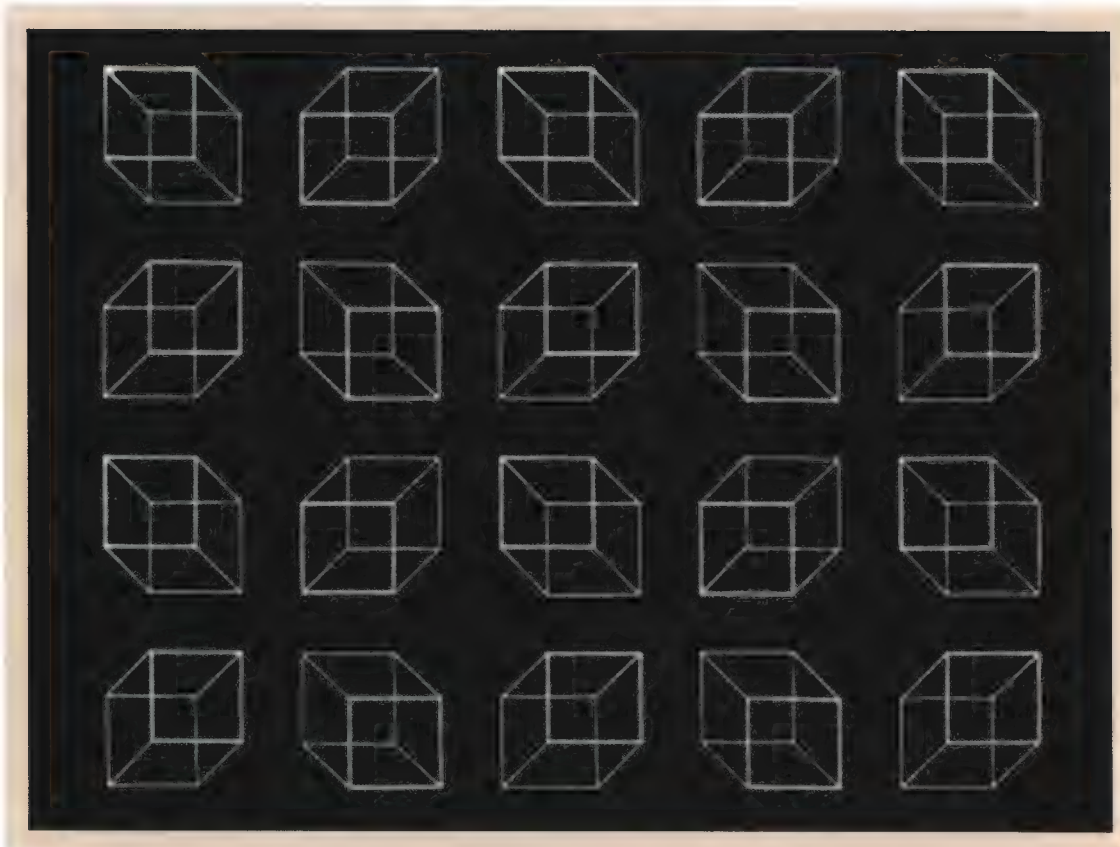
Move this figure either right or left and you will perceive blurred "figures of eight" moving perpendicular to the true direction of motion. If you stare steadily at the center you should see a rotation pattern. You can get the direction of rotation to change by fixating on a point left or right of the center of the image.

Pinna's Separating Squares Illusion



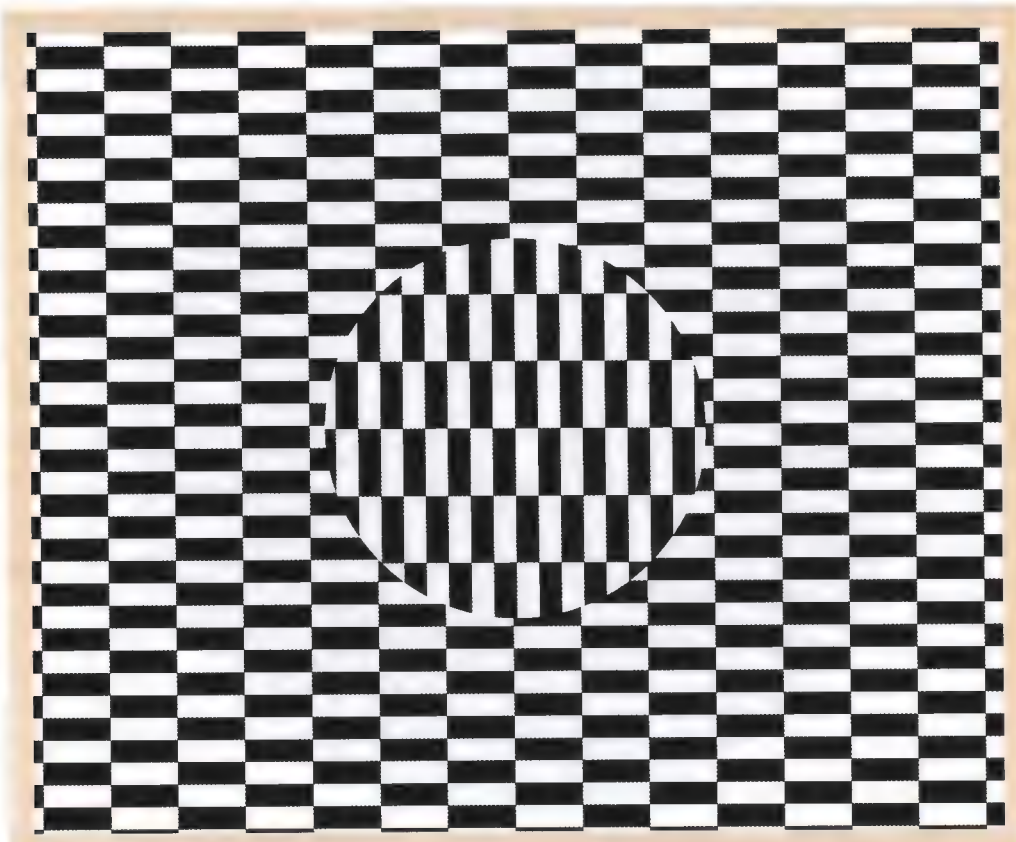
If you move your eyes across this image or slowly shake the image, the center squares will appear to separate in depth and move in a slightly different manner than the surrounding squares.

Flip-Flop



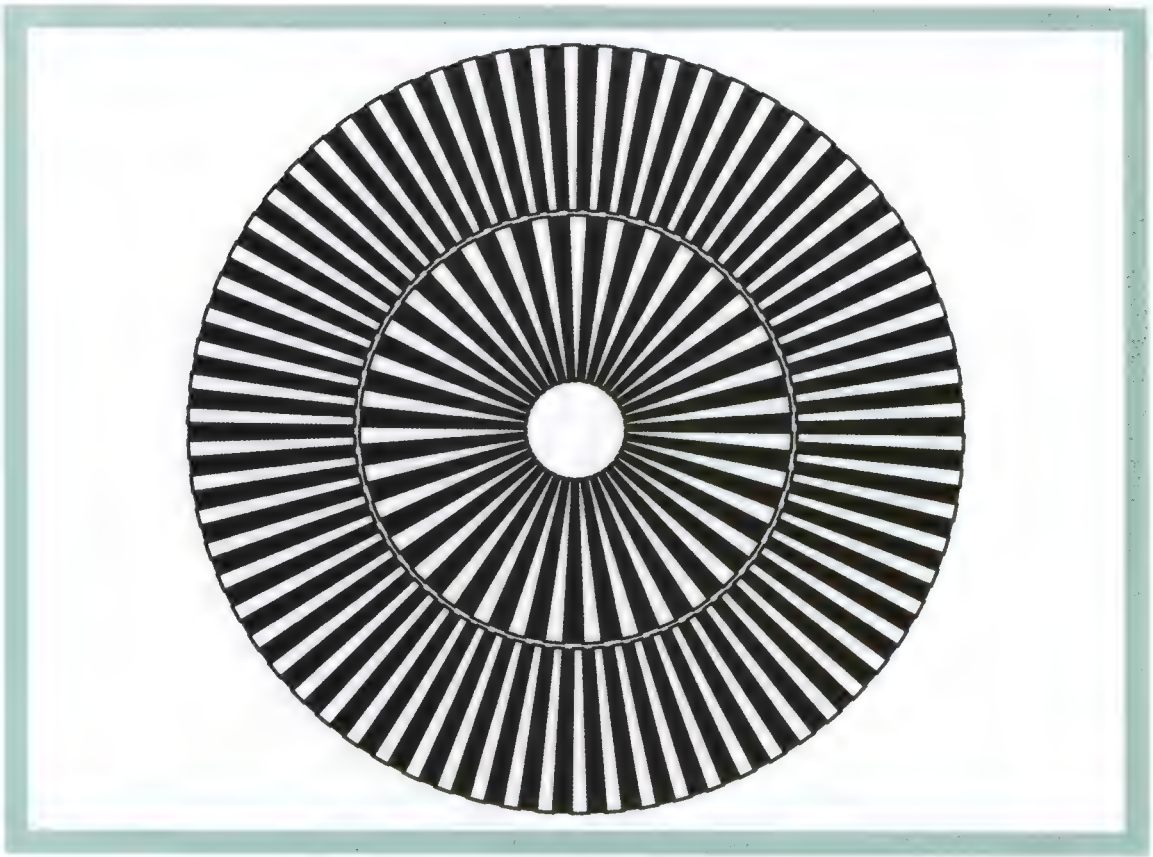
If you steadily stare at all the cubes, they will all suddenly flip-flop in orientation.

The Ouchi Illusion



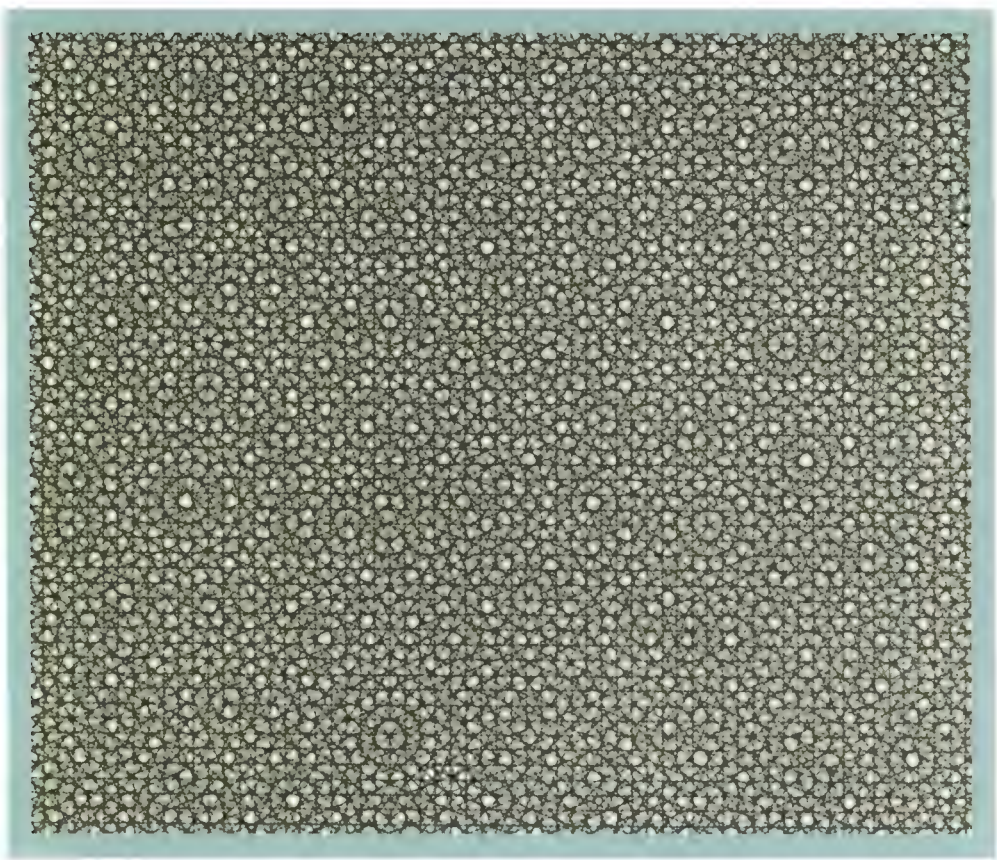
If you move your eyes across this image or slowly shake the image, the center section will appear to separate in depth and move slightly in a direction opposite to its surround.

Hula-Hoop Illusion



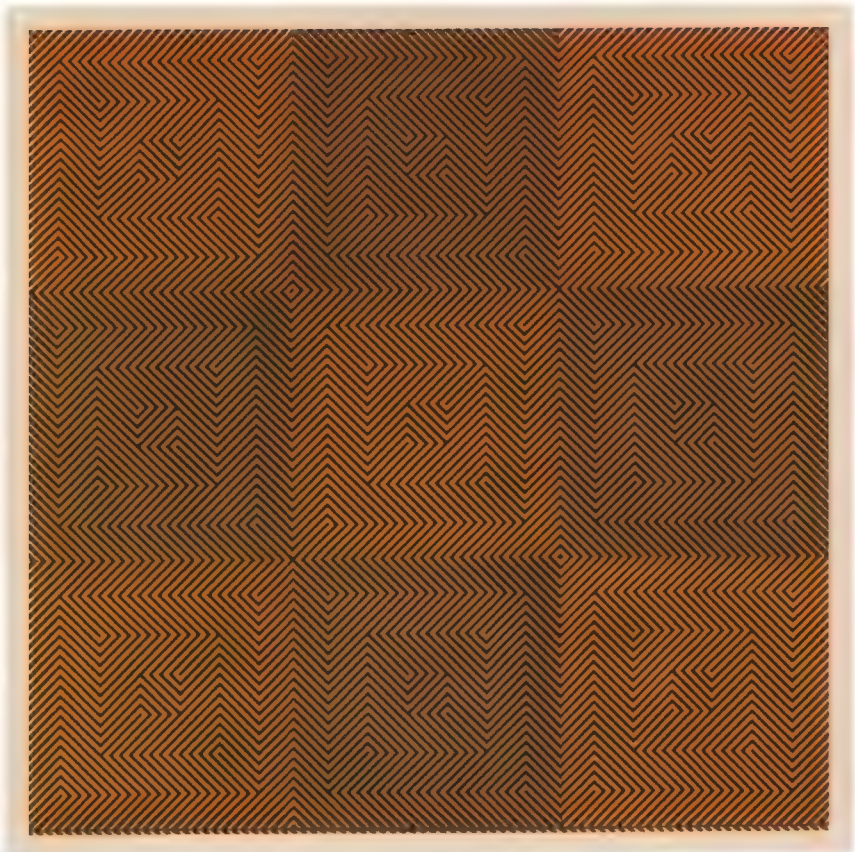
View this image while moving it quickly in a circular fashion without changing its orientation. The motion should be similar to how you rinse a cup. You should see the intermediate circle move along with this movement, like a hoop being spun slowly around the hips.

Morellet's Tiret Illusion



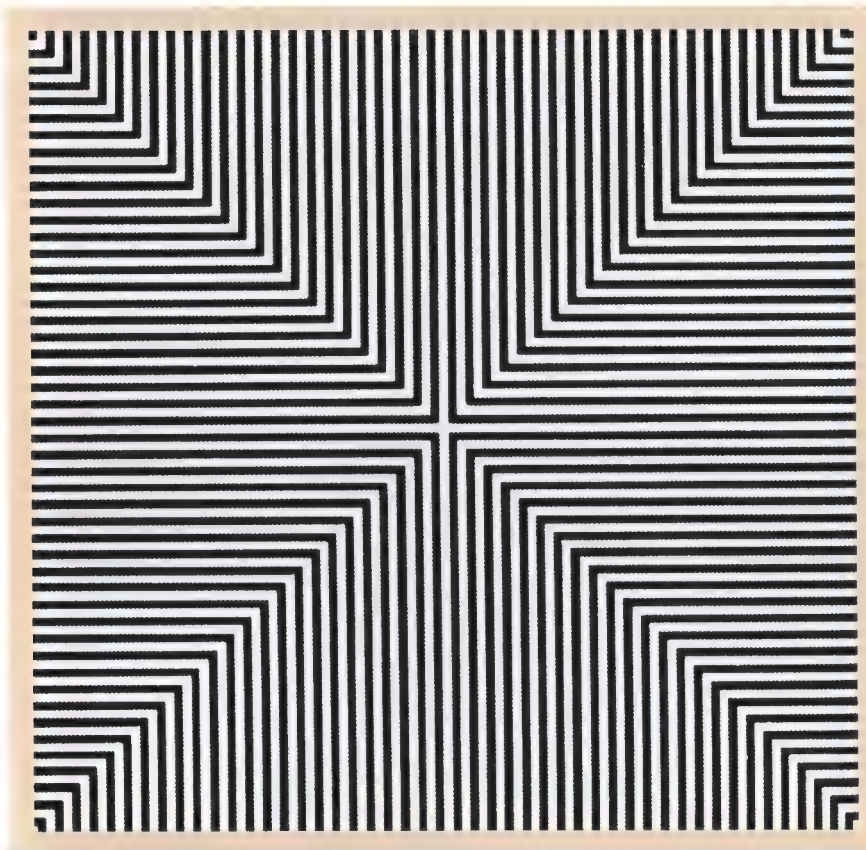
Move your eyes around this image and the small circles will appear to scintillate and fade.

Reginald Neal's Square of Three



This pattern appears to pulse and ripple as you move your eyes across it.

Vibration 1

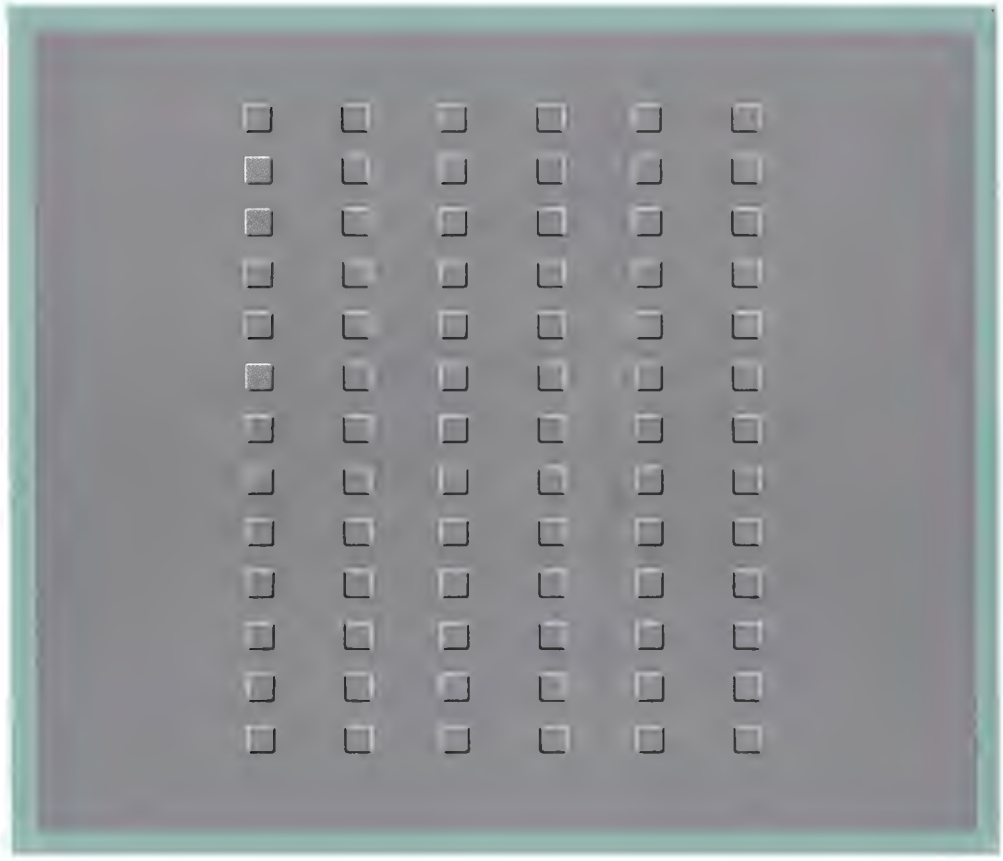


Slowly shake this figure and it will appear to vibrate.

The Concentric Circles Illusion

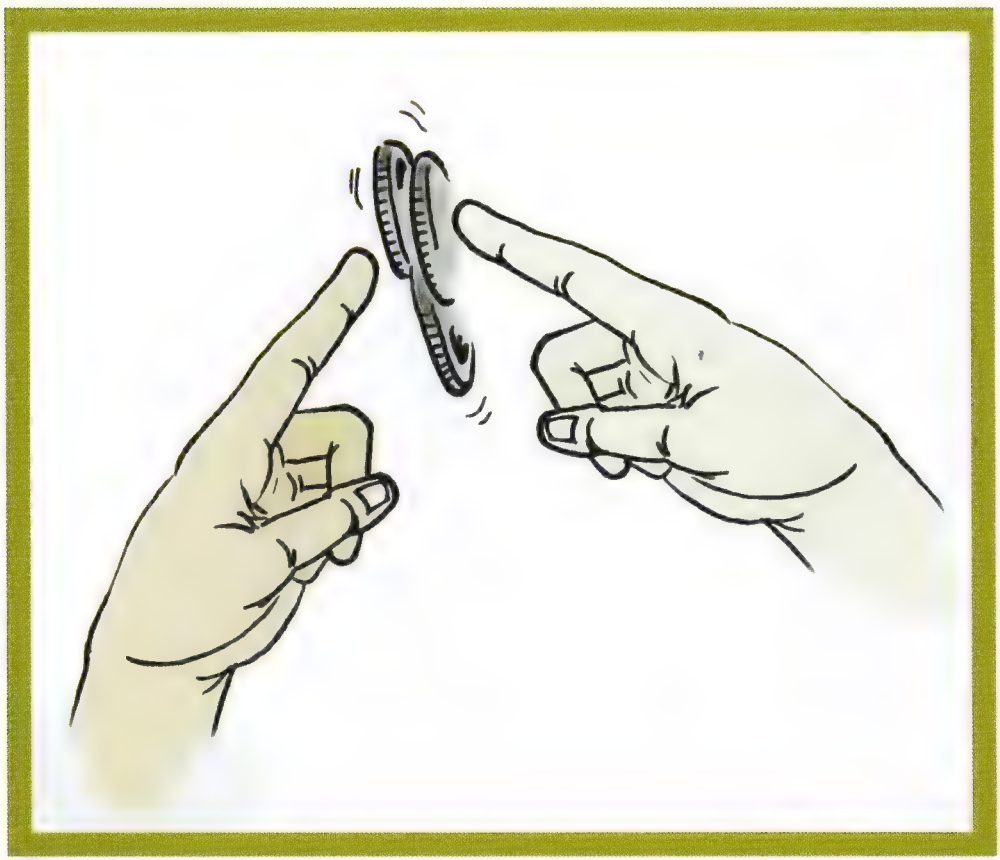
Move this image in a circular fashion and the bicycle wheel spokes will appear to turn.

Pinna's Splitting Lines Illusion



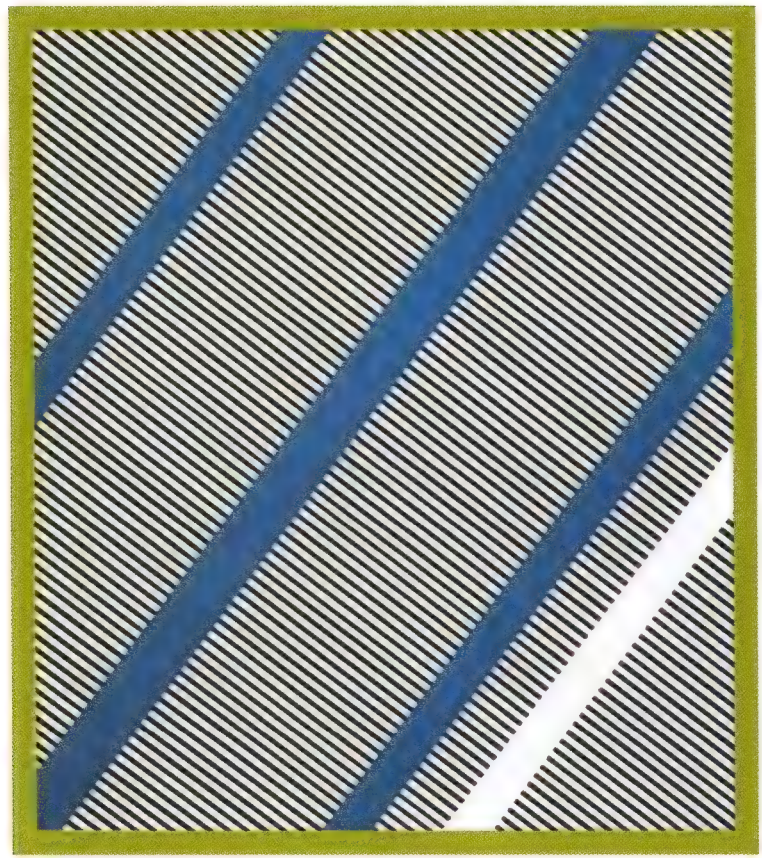
Slowly move this page up and down and the lines will appear to separate.

Illusionary Profits



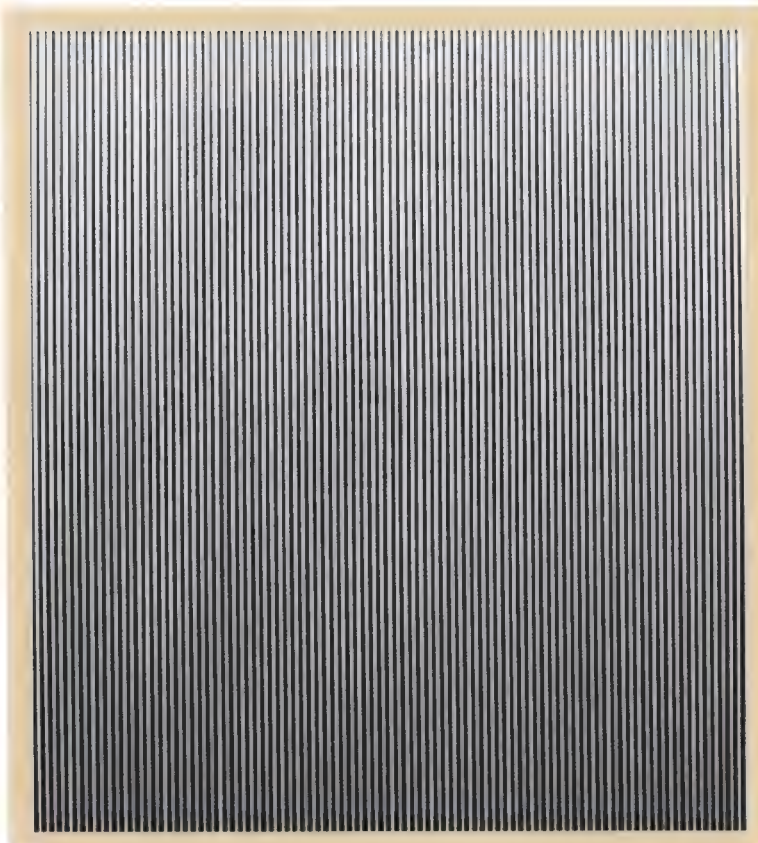
Take two quarters and rub them together quickly, and you will perceive a third coin.

The Traffic Illusion



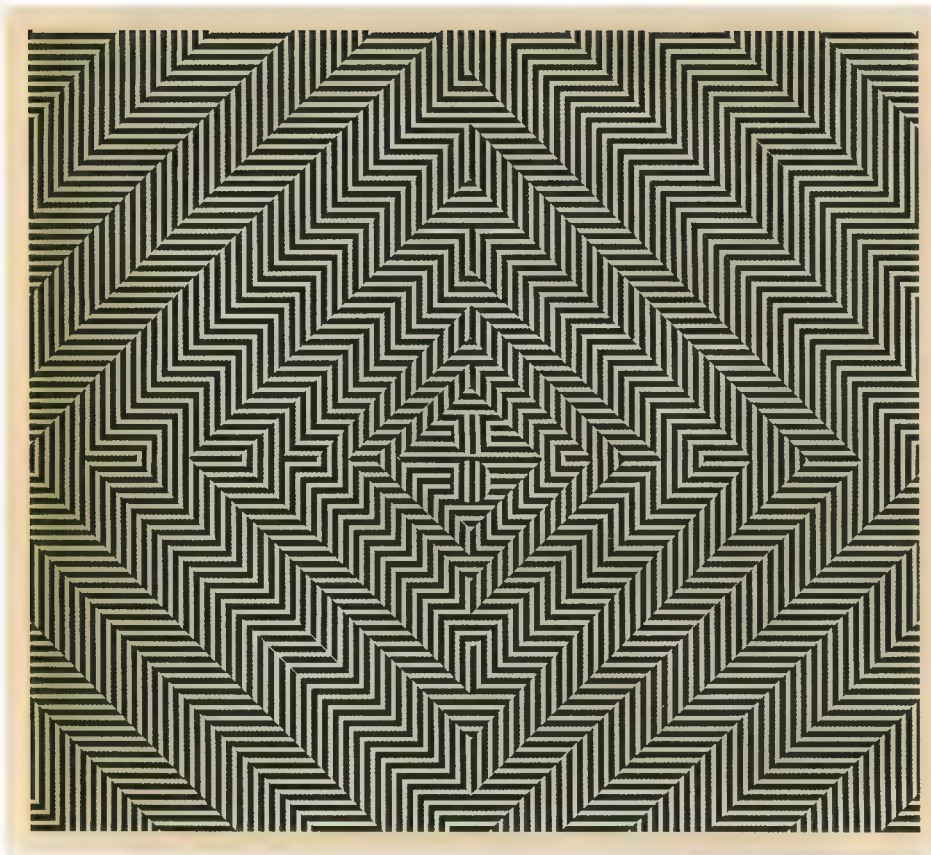
If you stare at this image, you will perceive some motion in the stripes.

Hidden Illusion



Slowly shake this image, and you will see a man's face.

Shimmer

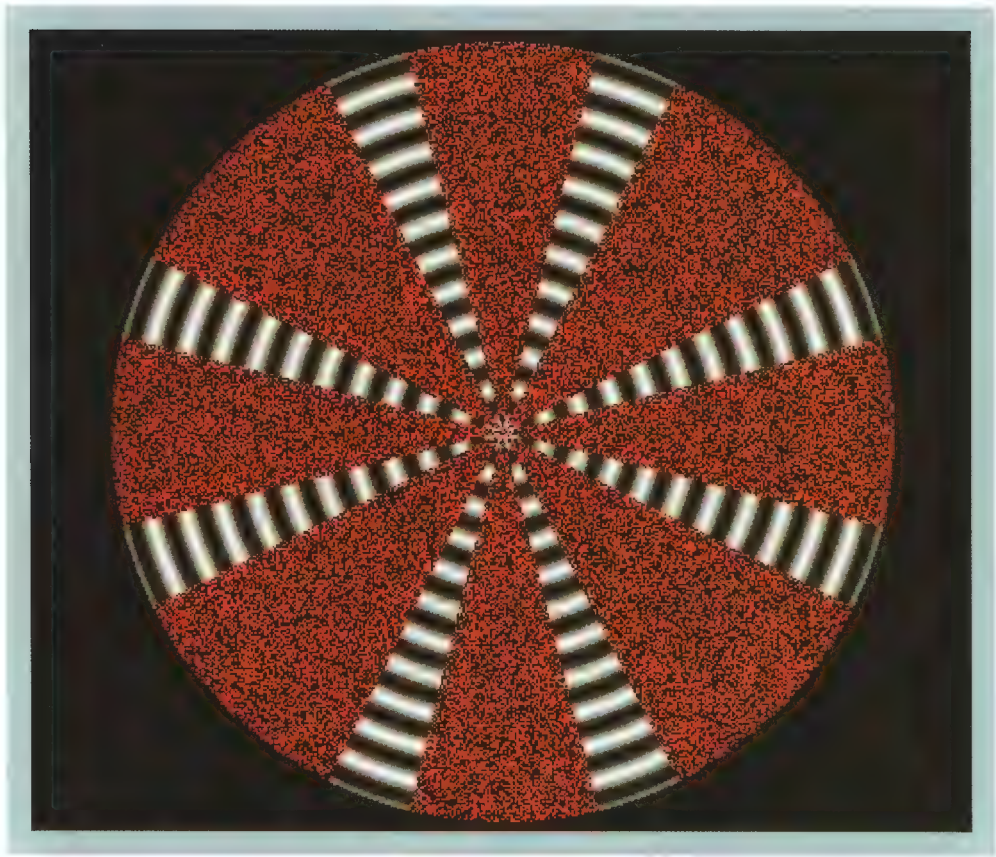


If you stare at this image it will appear to shimmer.

An Unbalanced World

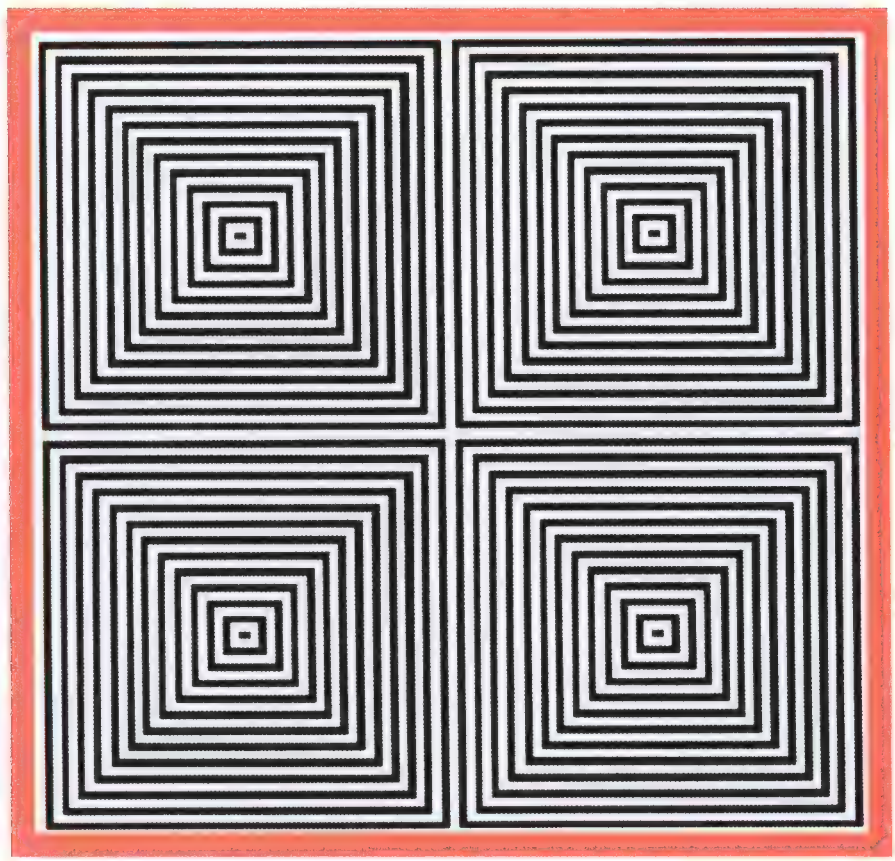
Stand like the girl in this picture using a baseball bat. Then make circles around the bat holding your head fixed. This will really make the world appear to spin.

A Delayed Reaction



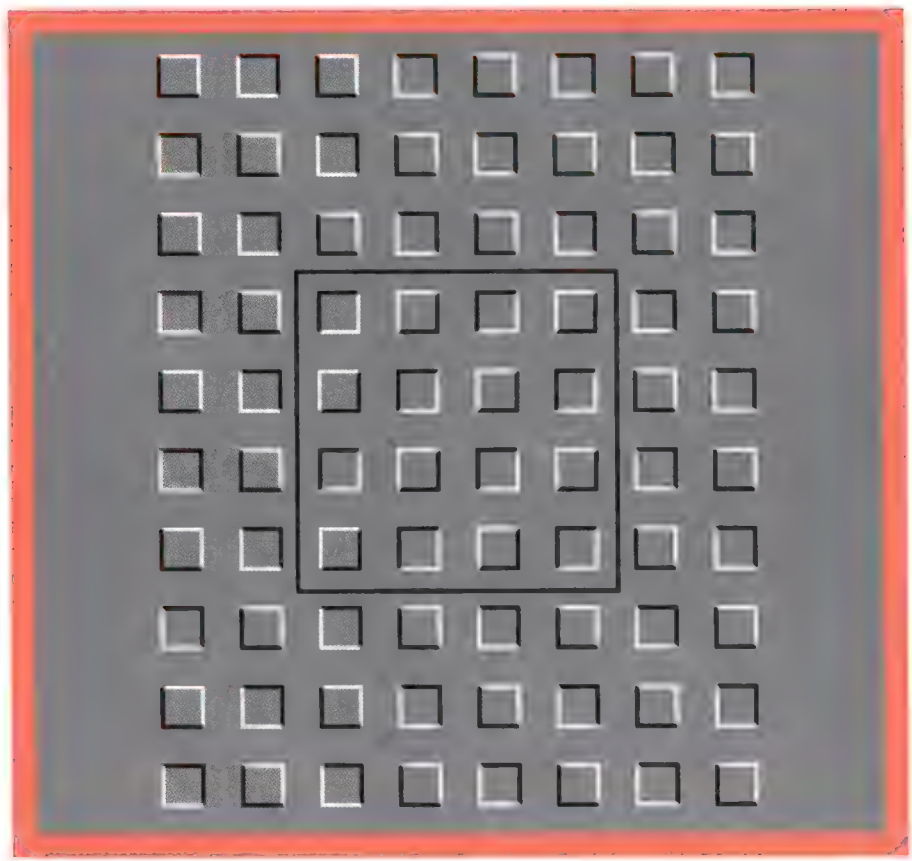
Move towards this image and then abruptly stop.

Vibration 2



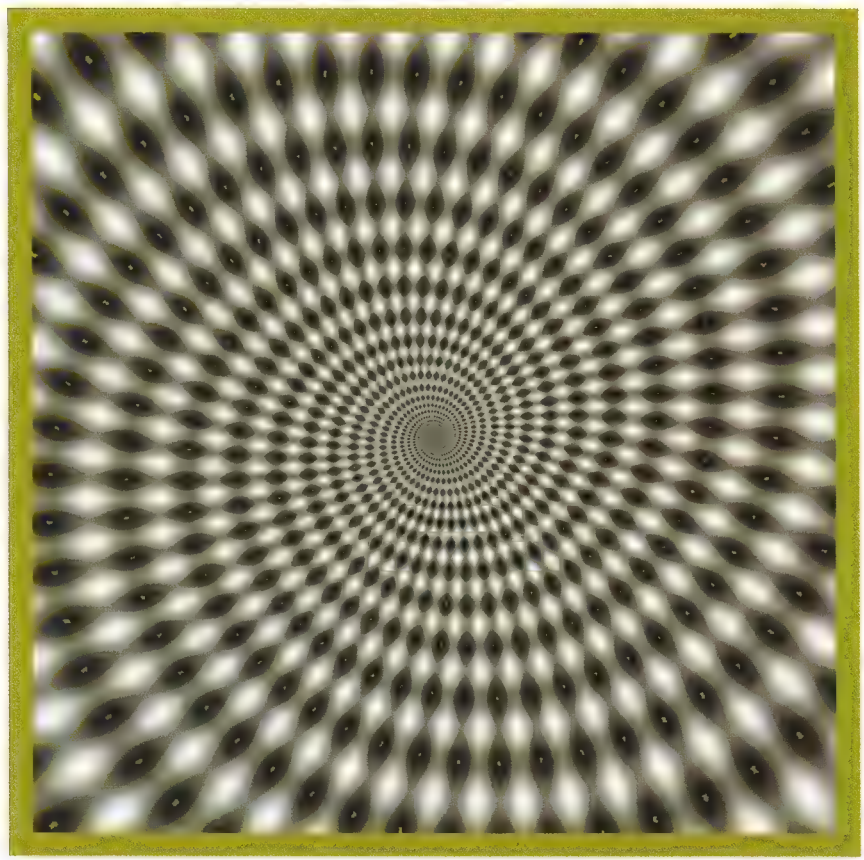
Move this square and it will appear to vibrate.

Pinna's Ouchi Variation



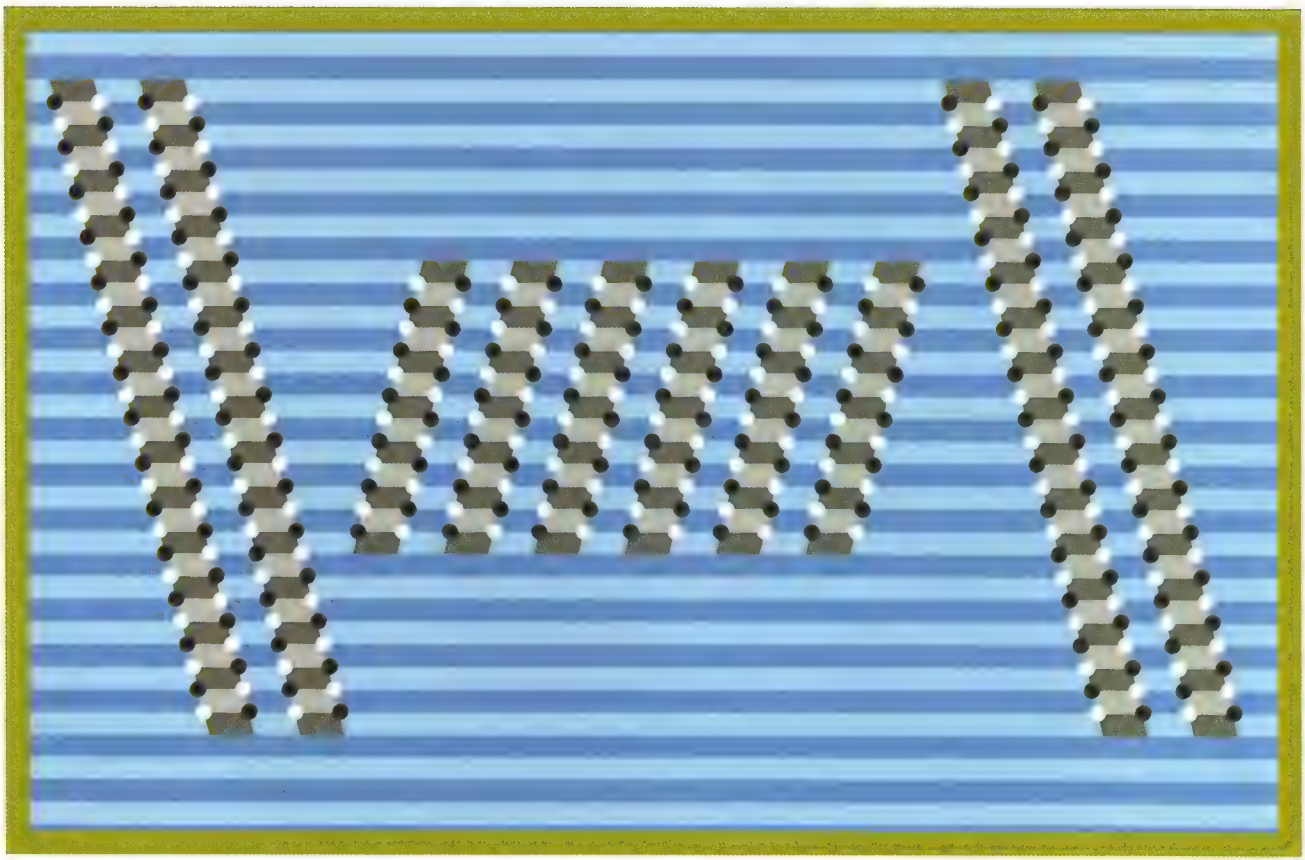
Move this image in an irregular manner.
What happens to the center squares?

Warp



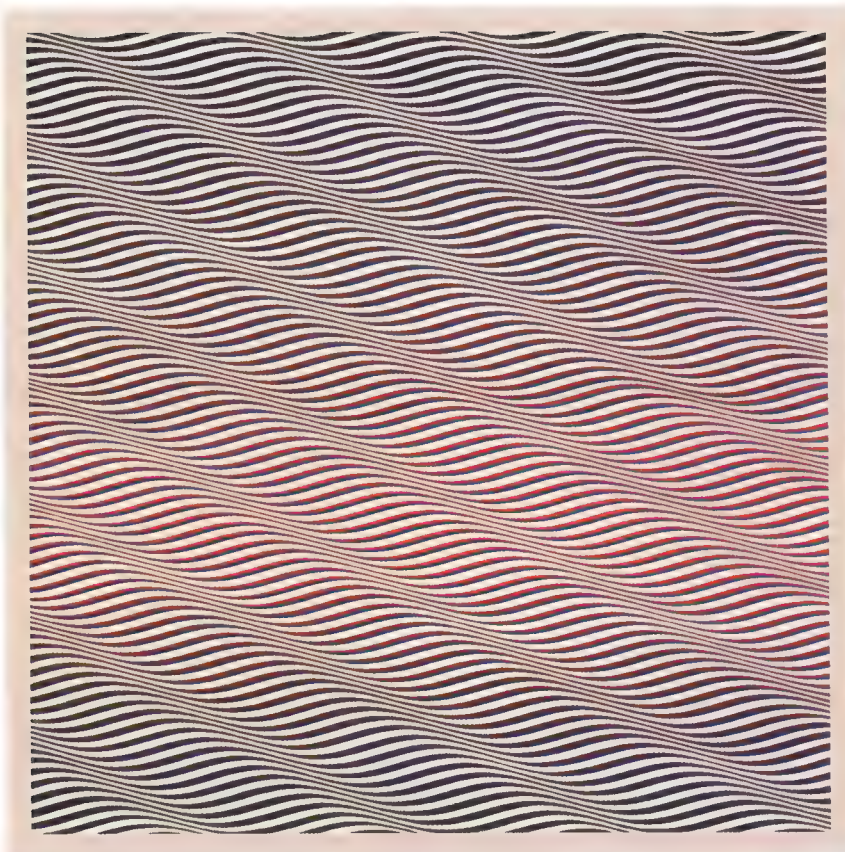
Move your head slowly towards and away from this image, and it will appear to spin.

Ferry Boat



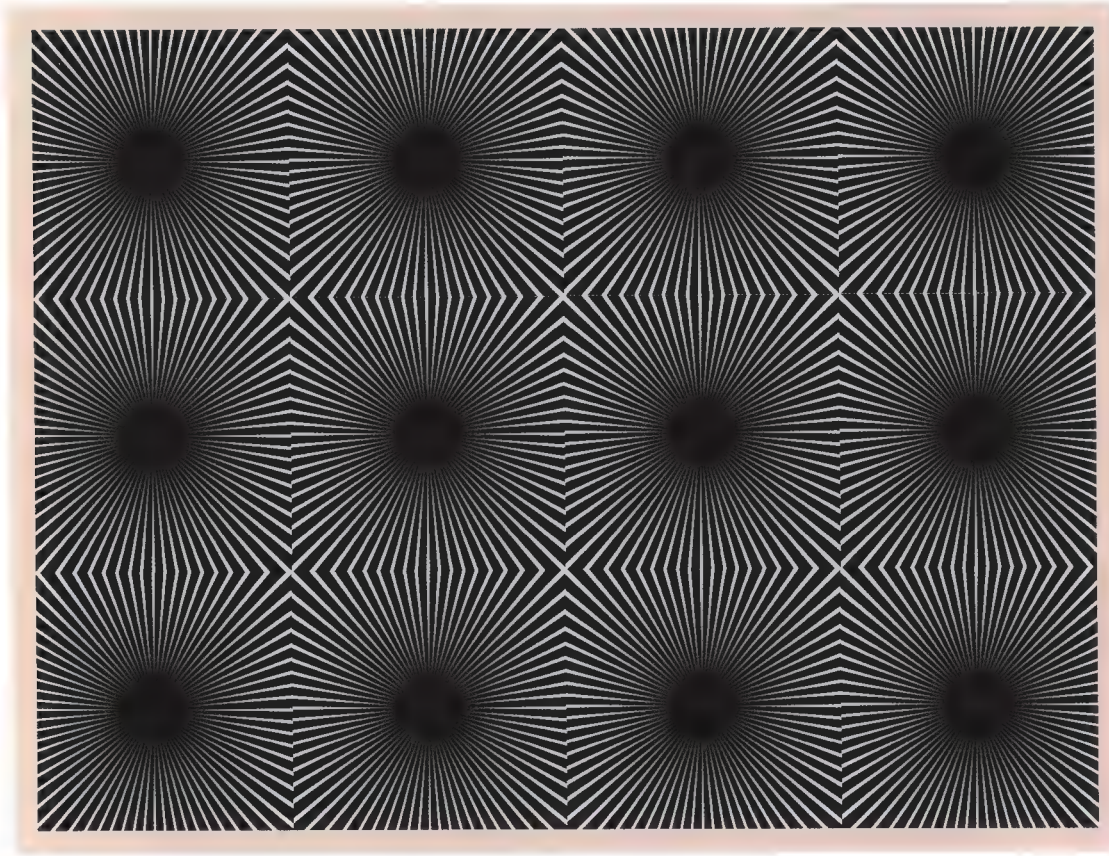
Stare at this image and the center section will appear to drift.

Waves



Move your eyes across this image and the waves will appear to ripple.

Tricky Tiles



Move your eyes around this image and it will appear to vibrate.

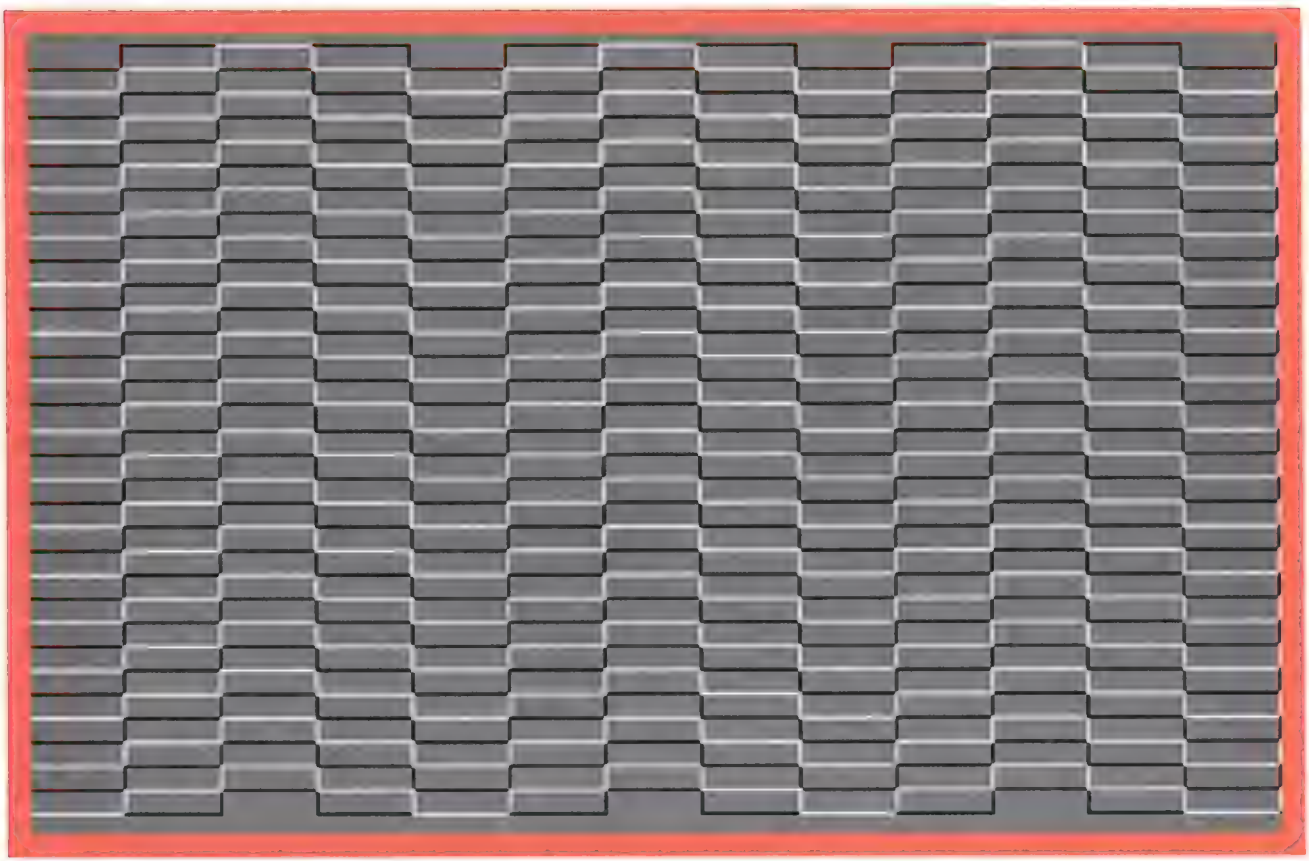
Kitaoka's Vortex

Move your head slowly towards and away from this image.

Driving Illusion

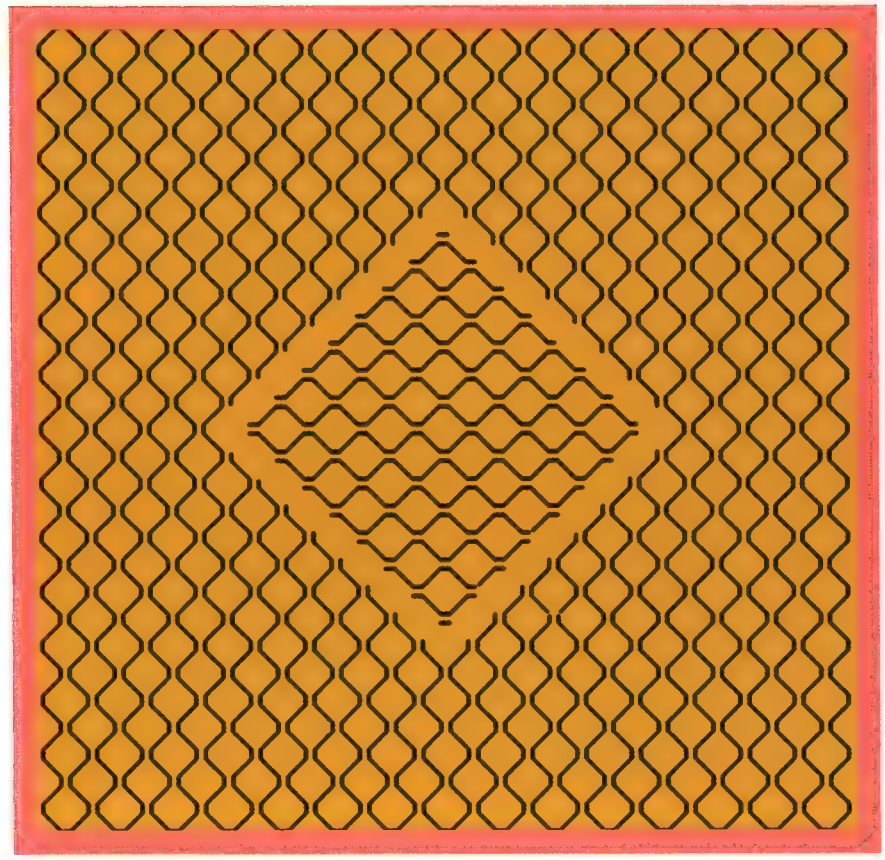
If you drive at a steady rate for any period of time, it will seem as if you are going slower and slower, which is part of the reason people get speeding tickets. They accelerate to get the initial sensation of going fast.

Heat Devil



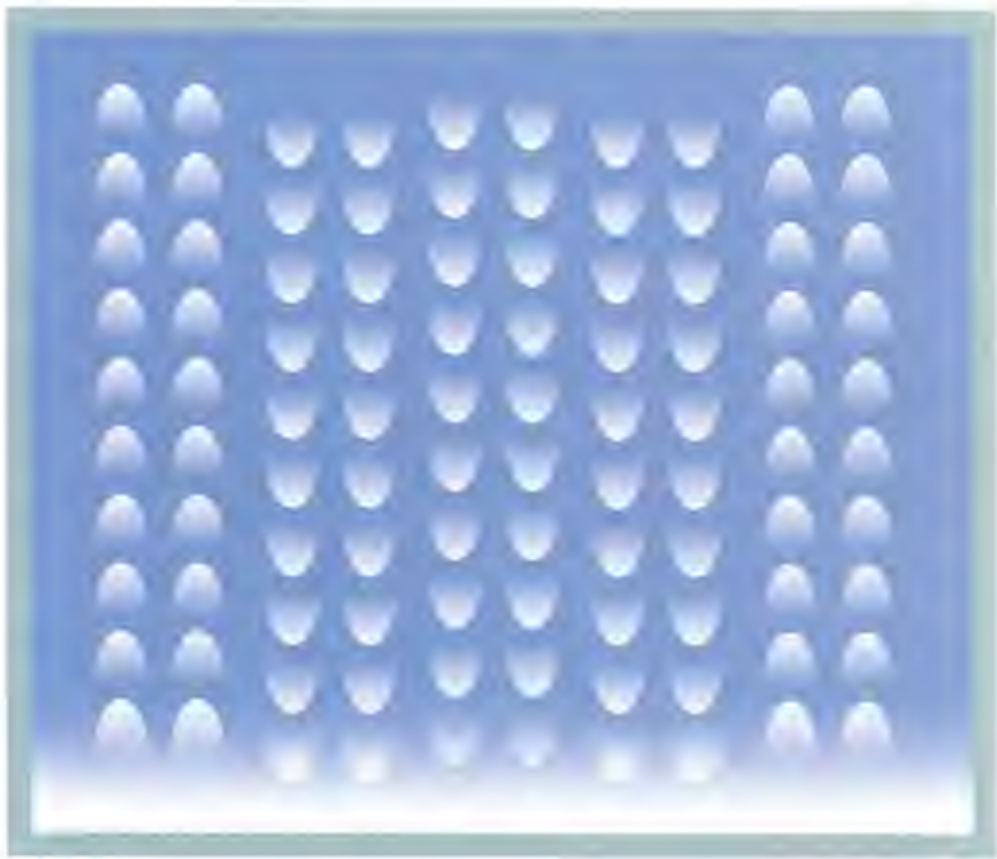
Move your eyes around this image and it will appear to pulsate.

Moving Scene Behind a Window



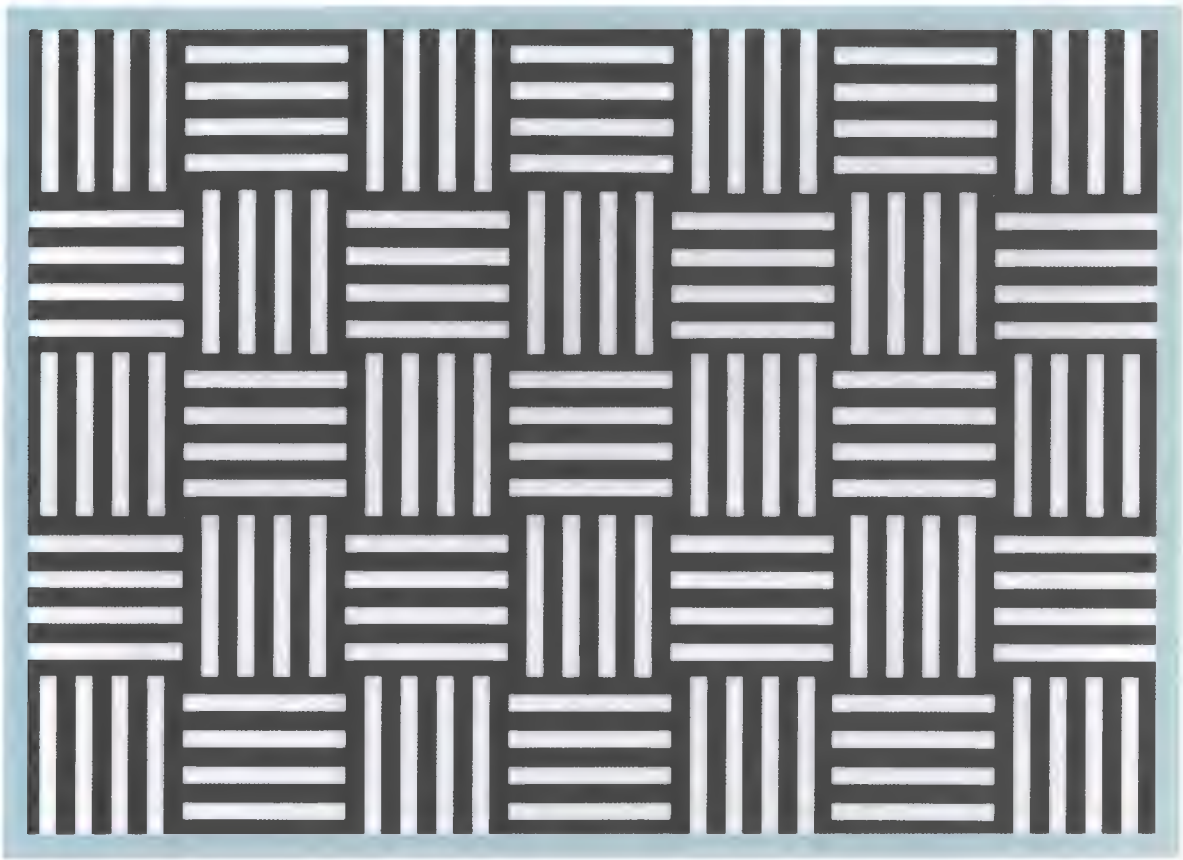
Slowly shake this image and the center section will separate.

Falls



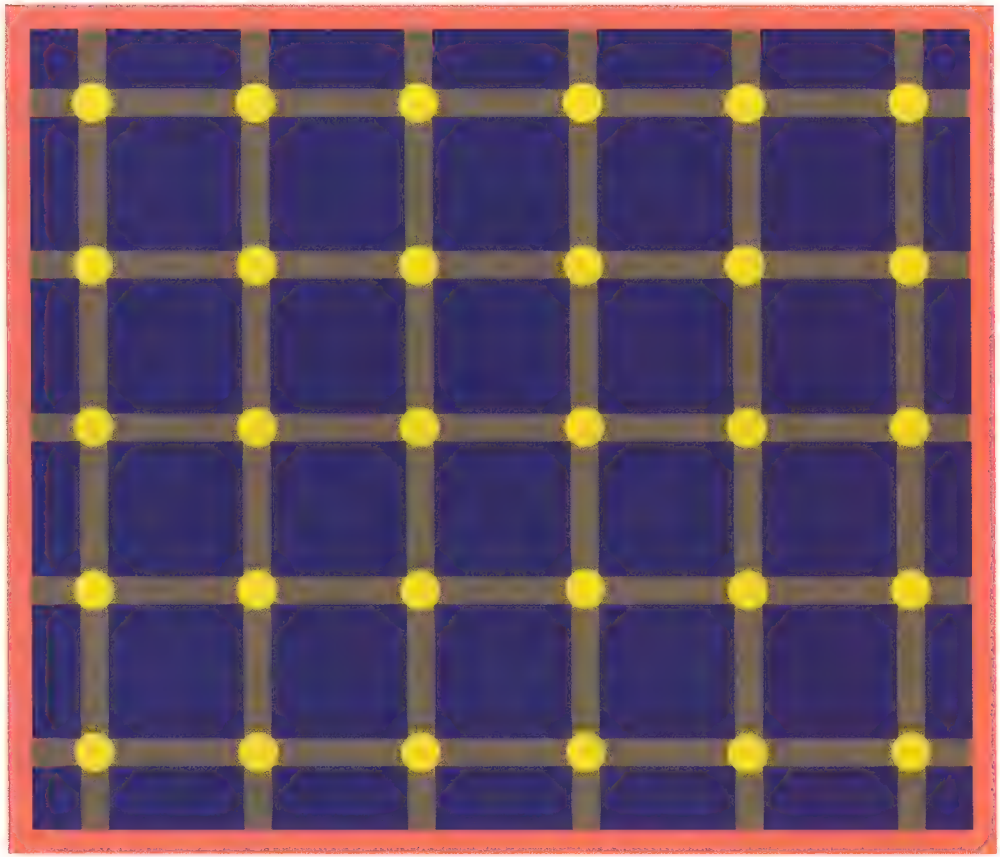
Stare at this image and the middle section will move down and the outer sections up.

MacCollough Effect 1



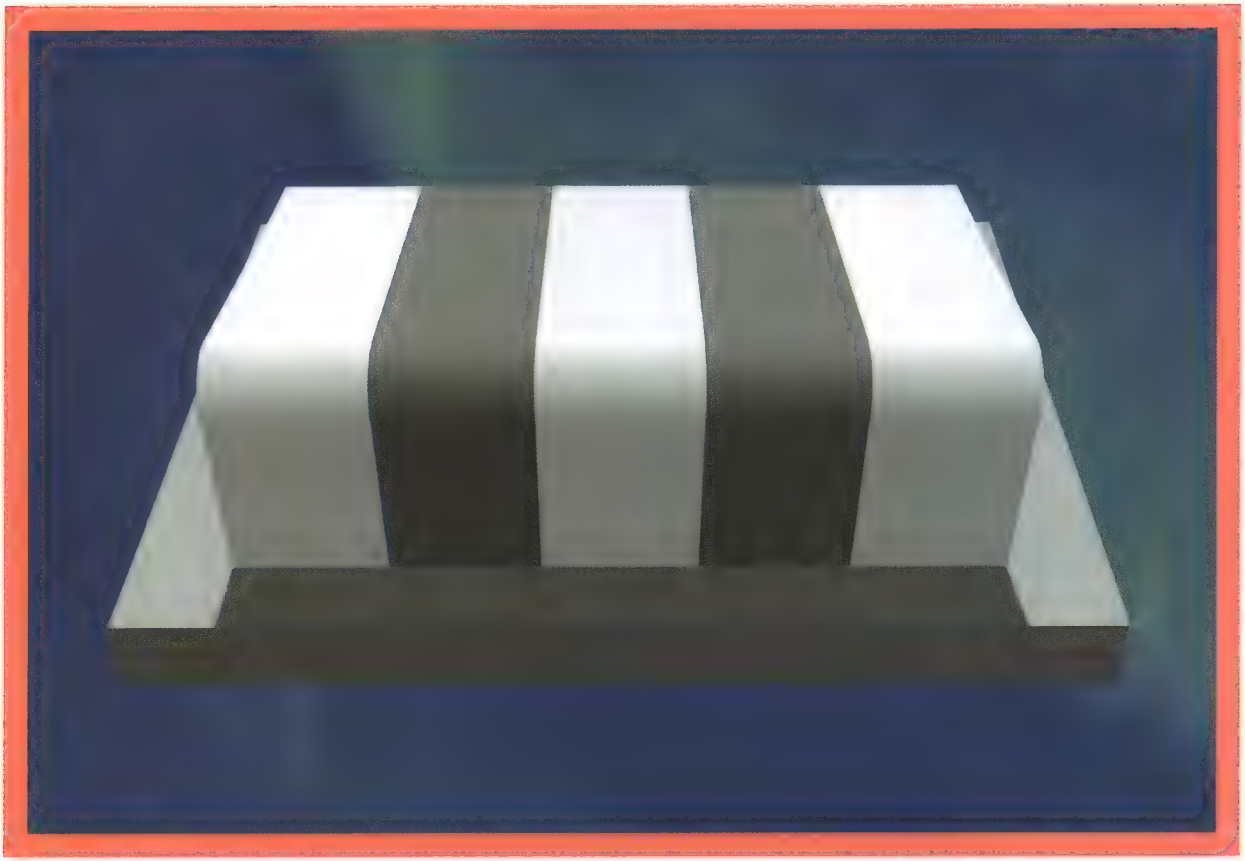
Stare steadily at the image on the previous page for at least five minutes without looking away. Then look at this image and you will see faint complementary colors. If you stare at it long enough, you may find that horizontal and vertical contours in your environment may take on these illusory colors.

The Scintillating Grid Illusion 1



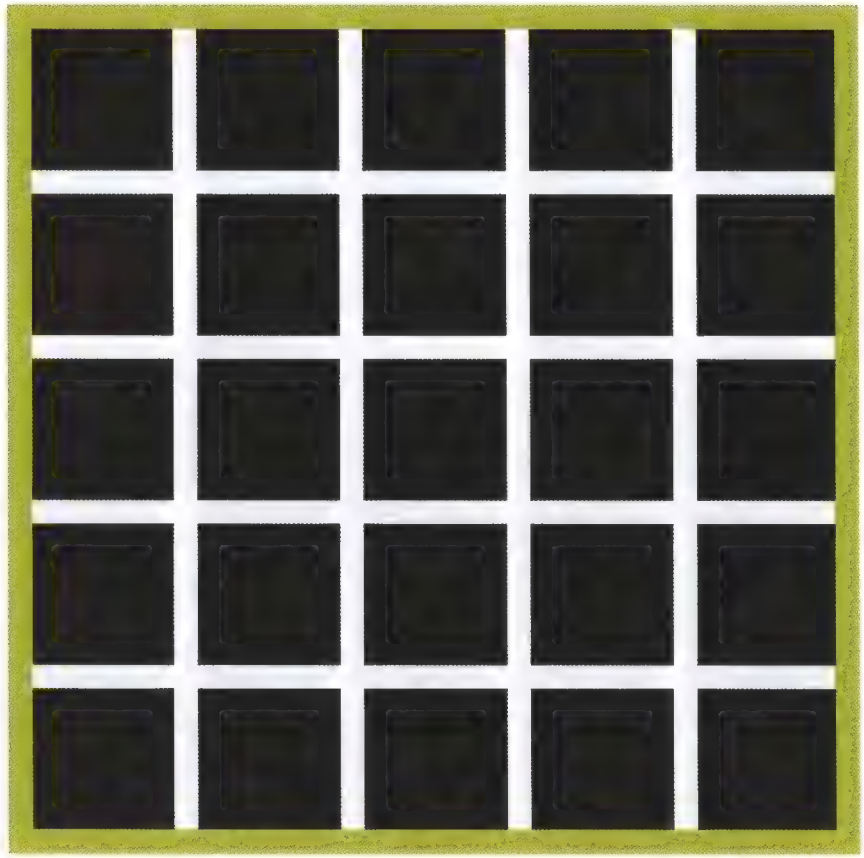
Move your eyes about this image and count the flashing dots at the intersections. Then count again. If you stare at any one dot it will disappear.

Purves and Lotto's Contrast Illusion



Look at the striped figure. It appears to be made of two gray stripes that lie in between three white stripes. However, the two gray stripes on the top of the figure are identical grays with the three white stripes on the front of the figure.

The Hermann Grid Illusion



Do you see ghostly white dots at the intersection?
If you stare at any one dot it will disappear.

Assimilation Illusion

The gray patch in the center appears darker than the surrounding gray, even though the two areas are identical grays.

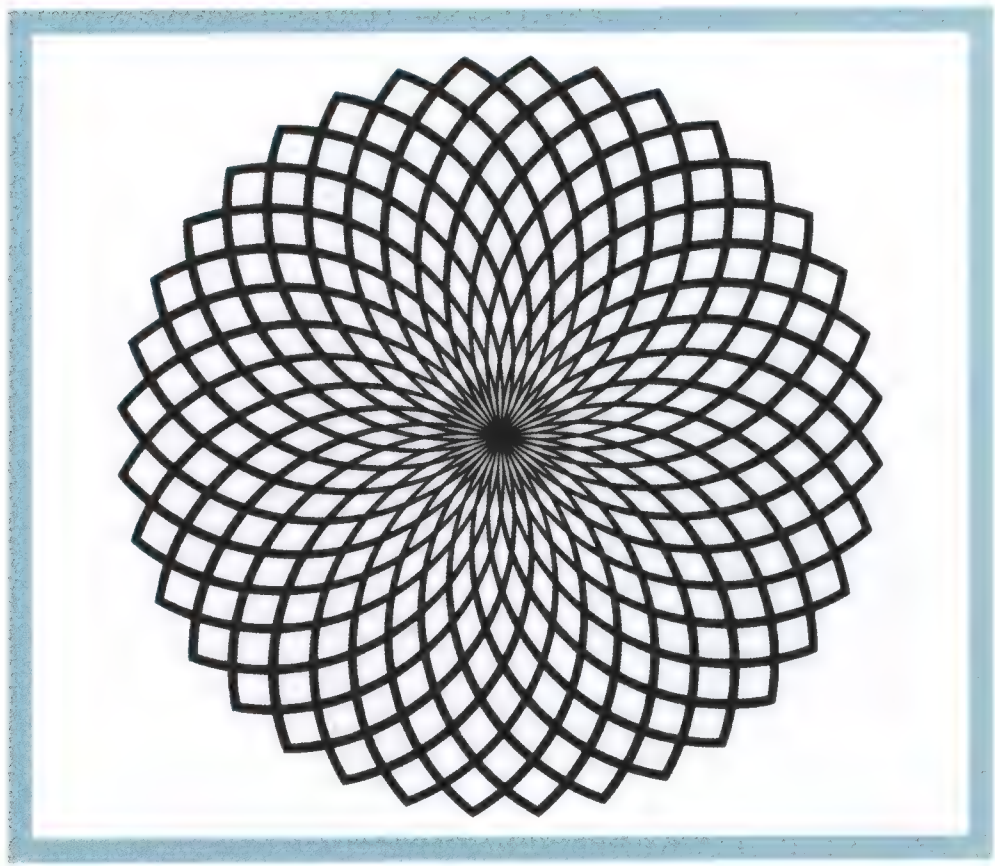
Purves' & Lotto's Cornsweet Illusion

Do you perceive a dark block on top of a lighter block? Both blocks are identical shades of gray. Put a pencil over the horizontal middle of the two blocks and you will see.

Craik-O'Brien–Cornsweet Illusion

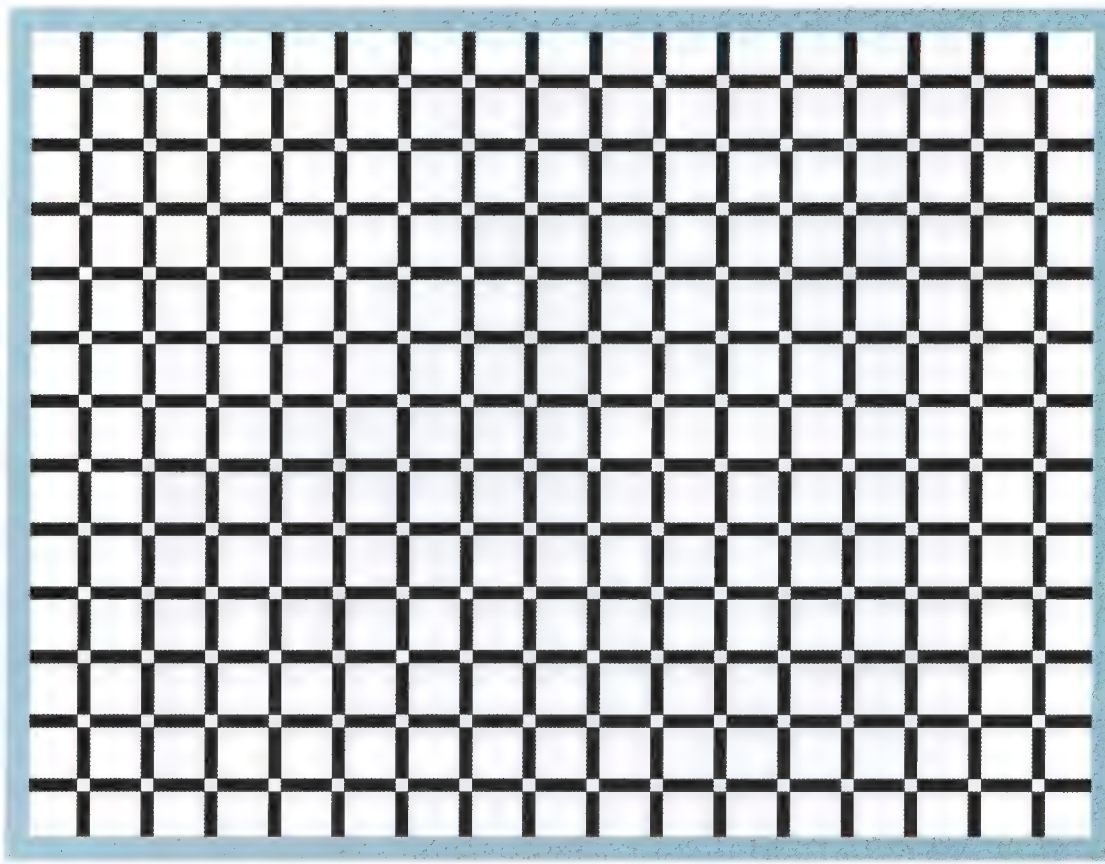
Look at each row of diamonds. Does each row appear darker than the row above it? All the diamonds are identical grays.

An Illusion Causing Another Illusion



Do you perceive a series of concentric rings? This is an illusion caused by illusory dots at the intersections. Stare at any one dot and it will disappear.

Lattice

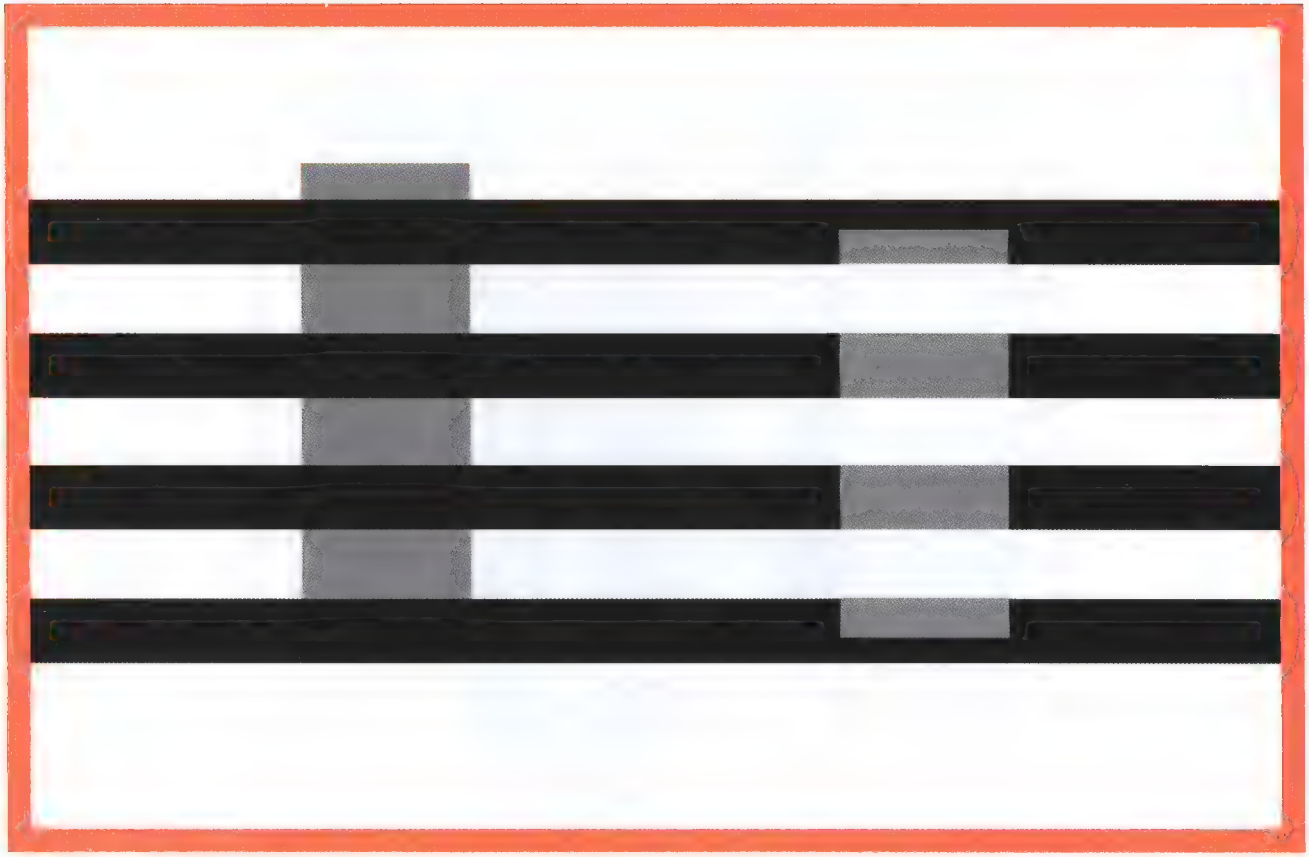


Do the small white boxes at the intersections appear brighter than the white background?

Simultaneous Contrast Illusion

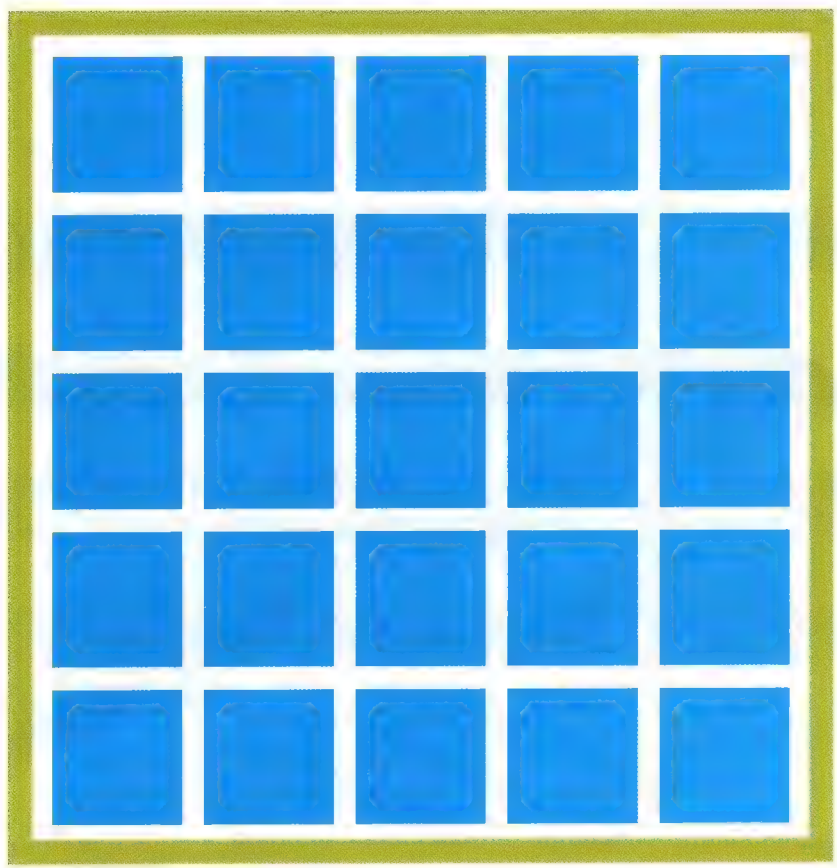
Is the horizontal bar the same value of gray throughout?
Cover everything but the bar to check.

White's Illusion



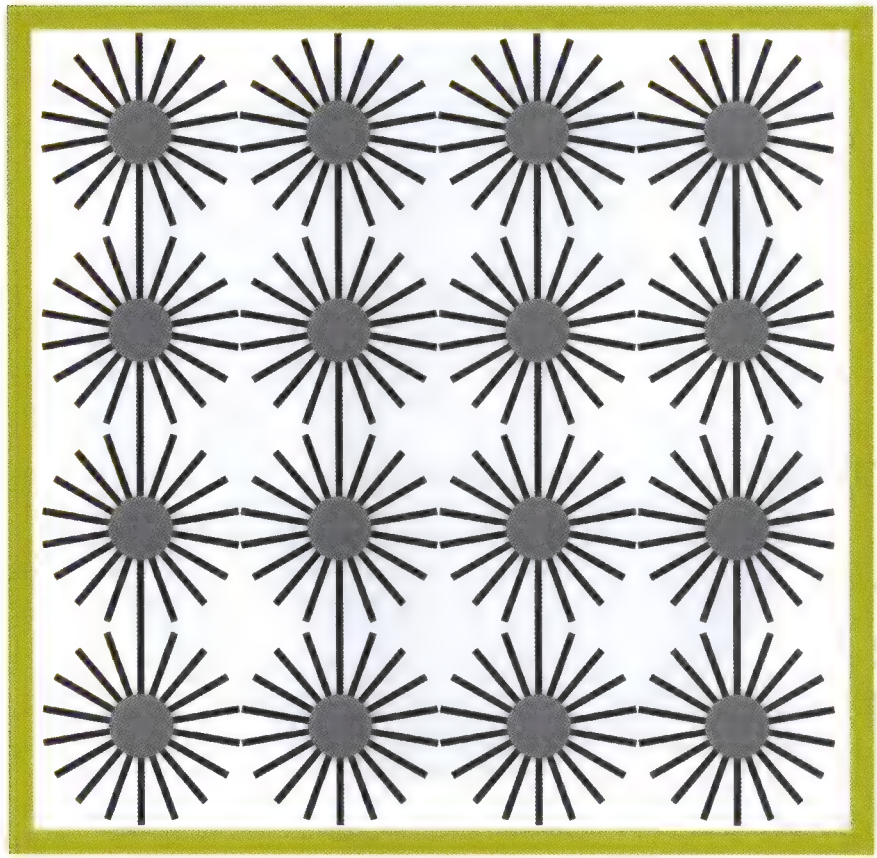
Are the two gray rectangles the same shade of gray?

Ghostly Dots in Blue



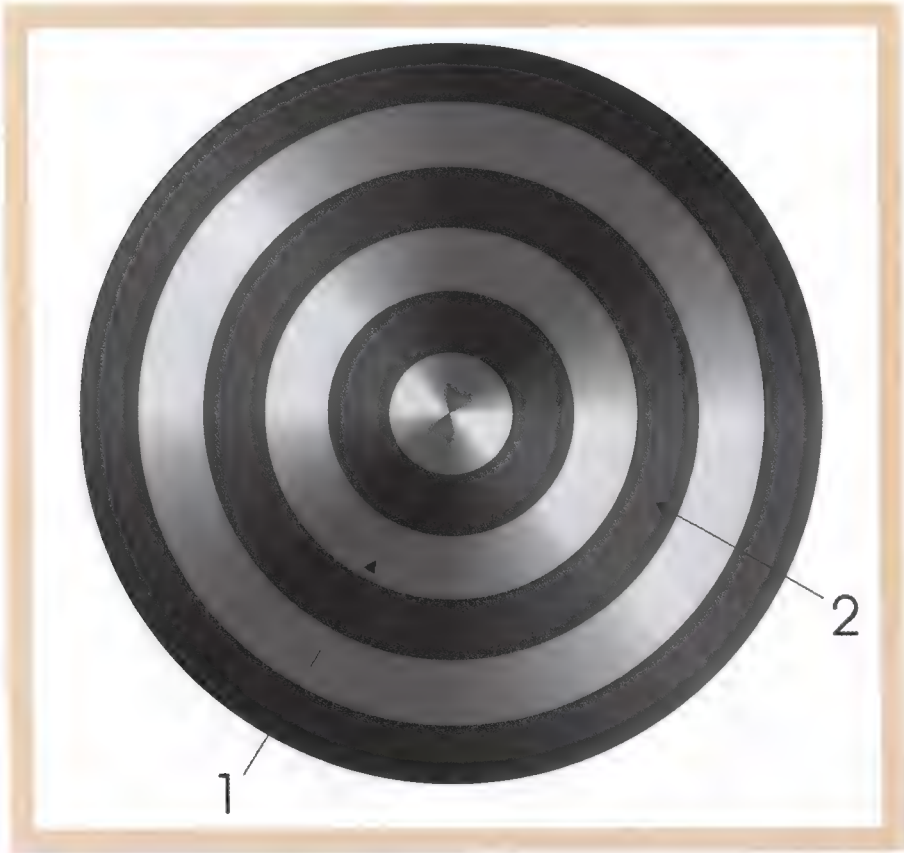
Do you perceive ghostly blue dots? Stare at any one of them and it will disappear.

Pinna's Scintillating Luster Illusion 1



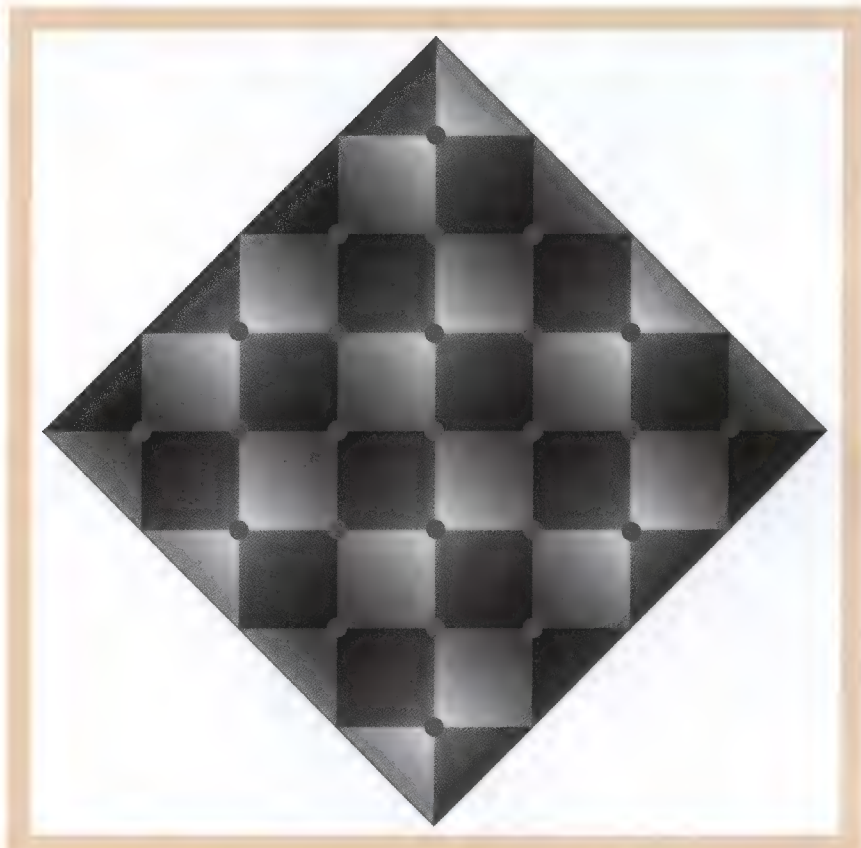
If you stare at this image it will appear to scintillate.

Todorovic's Dartboard Illusion



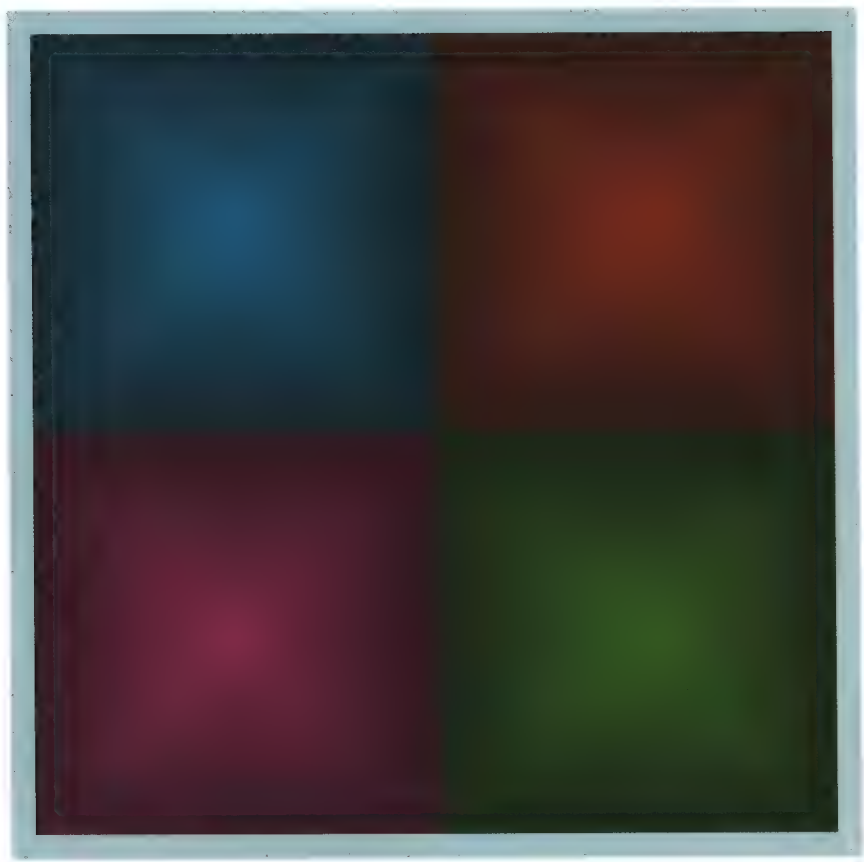
Do the "light" and "dark" regions, as indicated by the arrows, appear to be different values of gray? Believe it or not they are identical.

Todorovic's Gradient Chessboard Illusion



The dots at the intersections appear to be different values of gray, but they are all identical.

Vasarely's Illusion

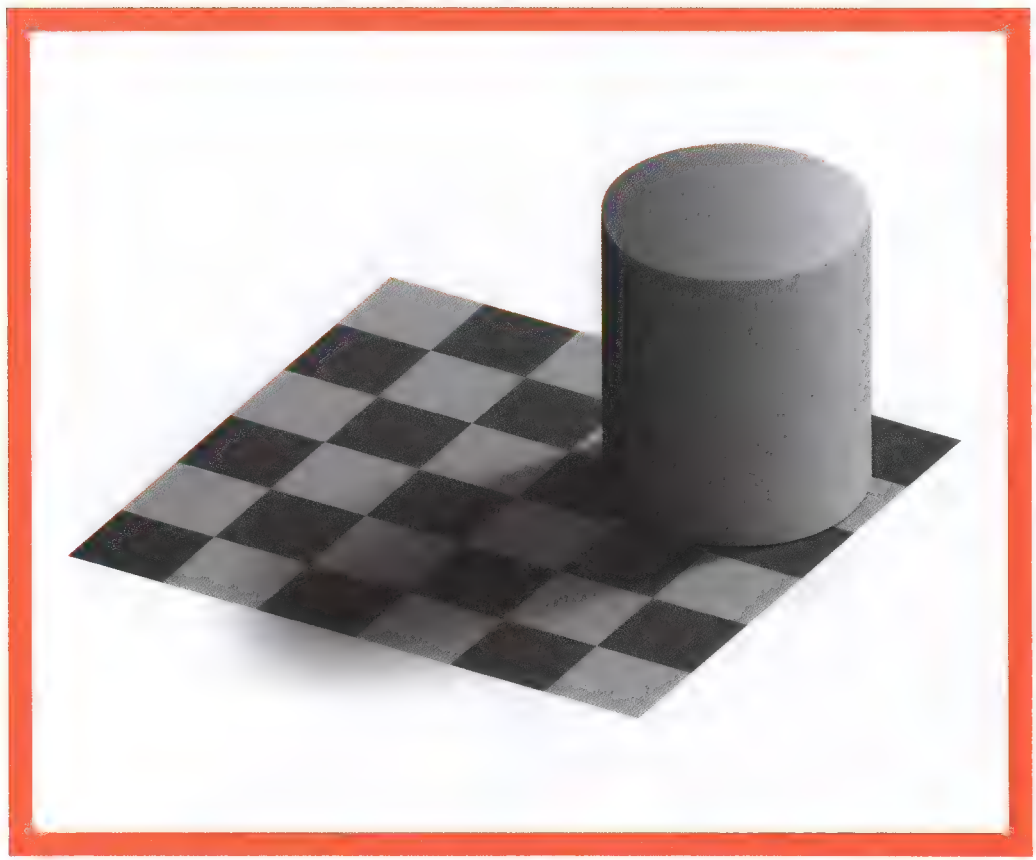


Do you perceive a bright diagonal cross within each of the squares? The crosses are illusory.

Purves' Brightness Illusion

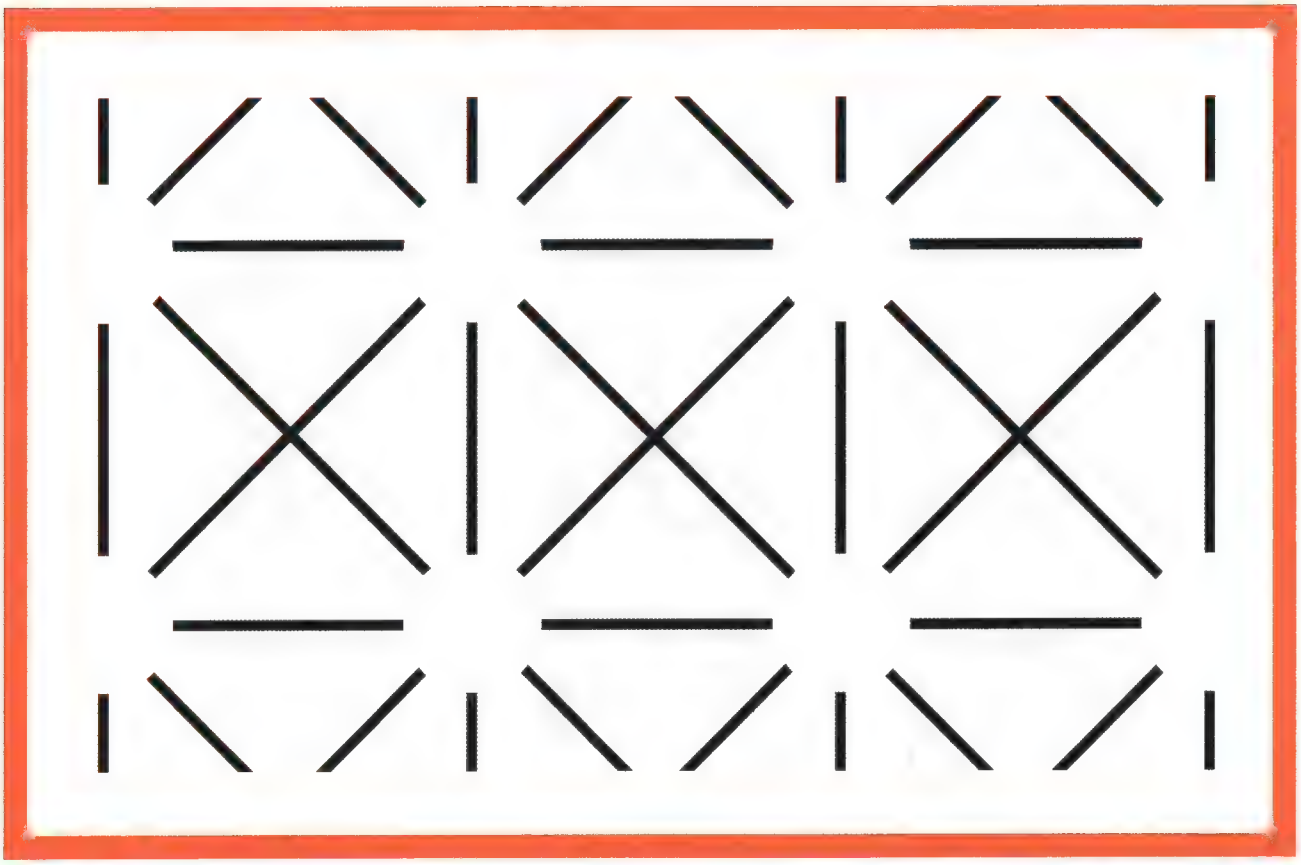
The light check in the shadow is an identical shade of gray to the dark check outside the shadow.

Adelson's Checkered Shadow Illusion



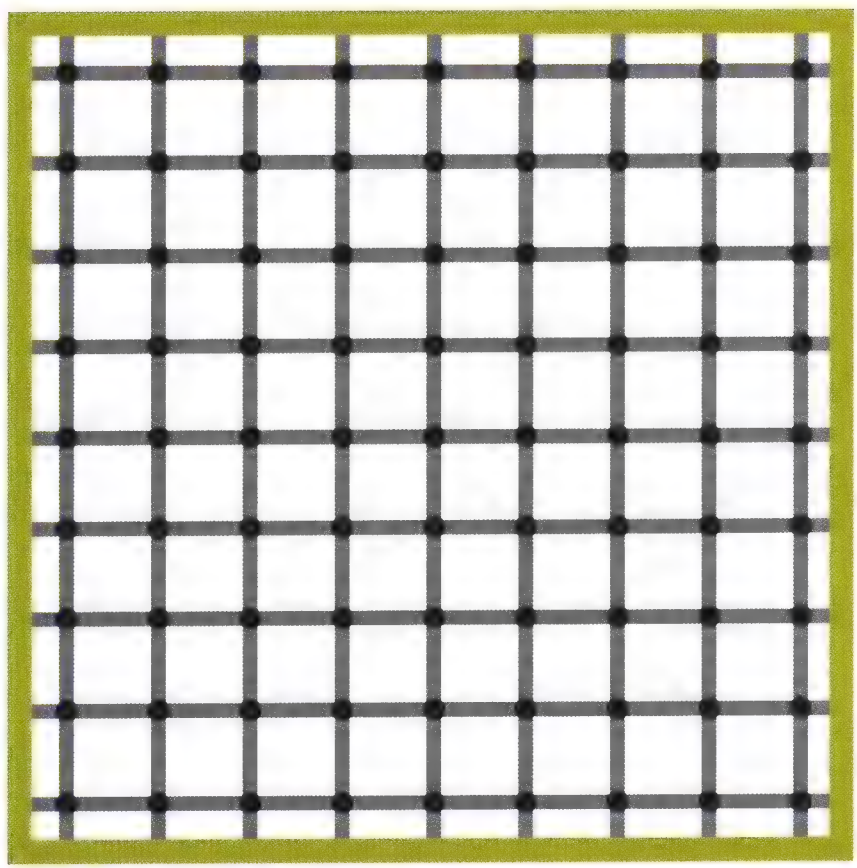
The light check within the shadow is the same value gray as the dark check outside the shadow. Cover everything but the two squares to check.

Ehrenstein Illusion



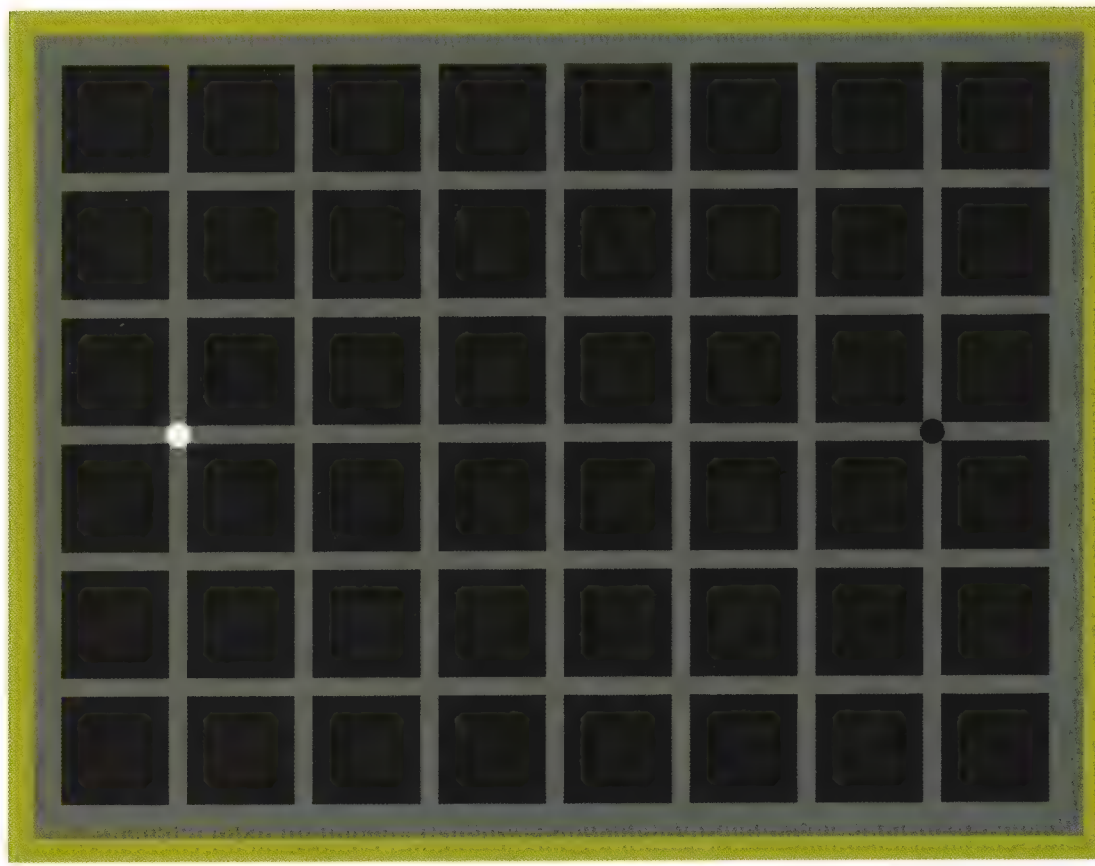
Do the white circles appear brighter than the white background?

The Scintillating Grid Illusion 2



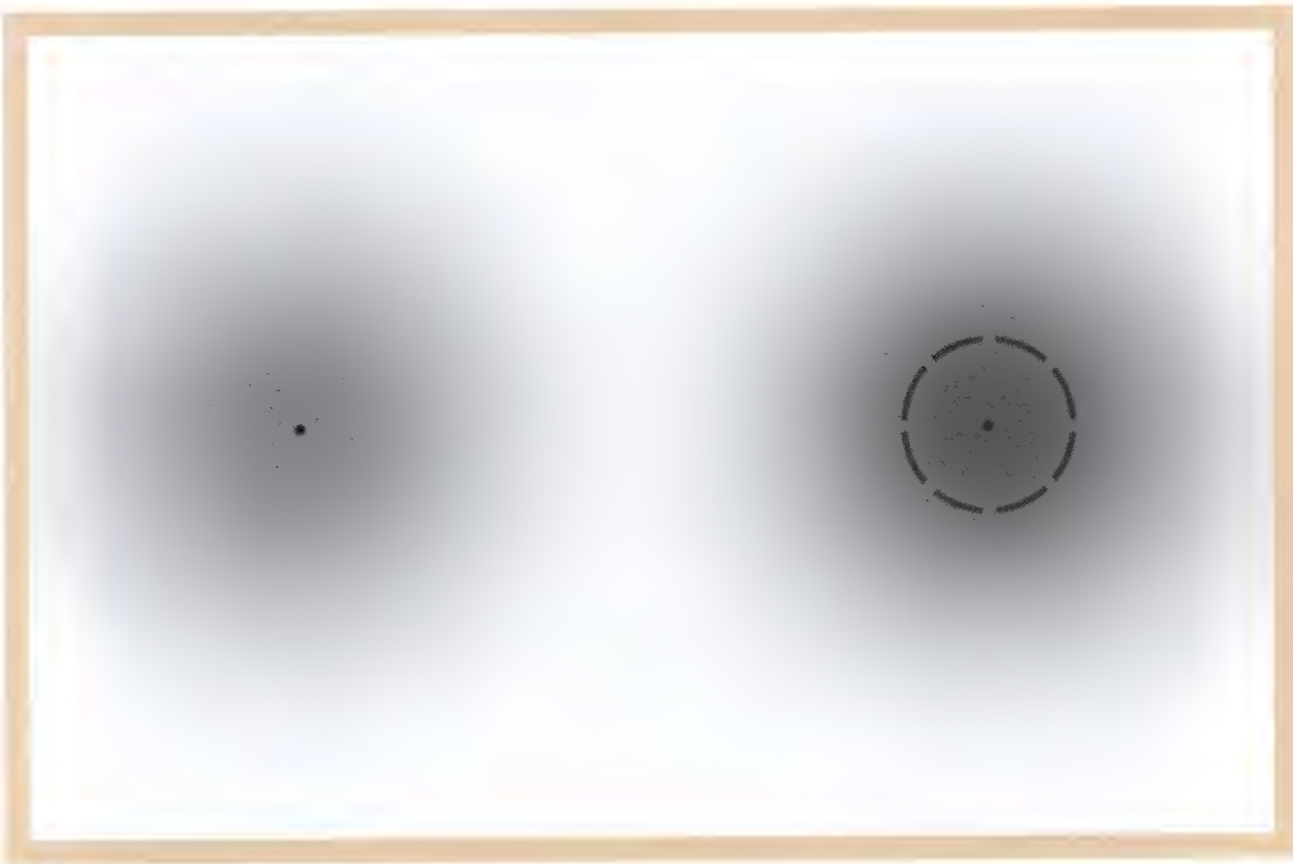
As you move your eyes around this image you should see scintillating dots at the intersections. If you stare at any one of them it will disappear.

Blanking



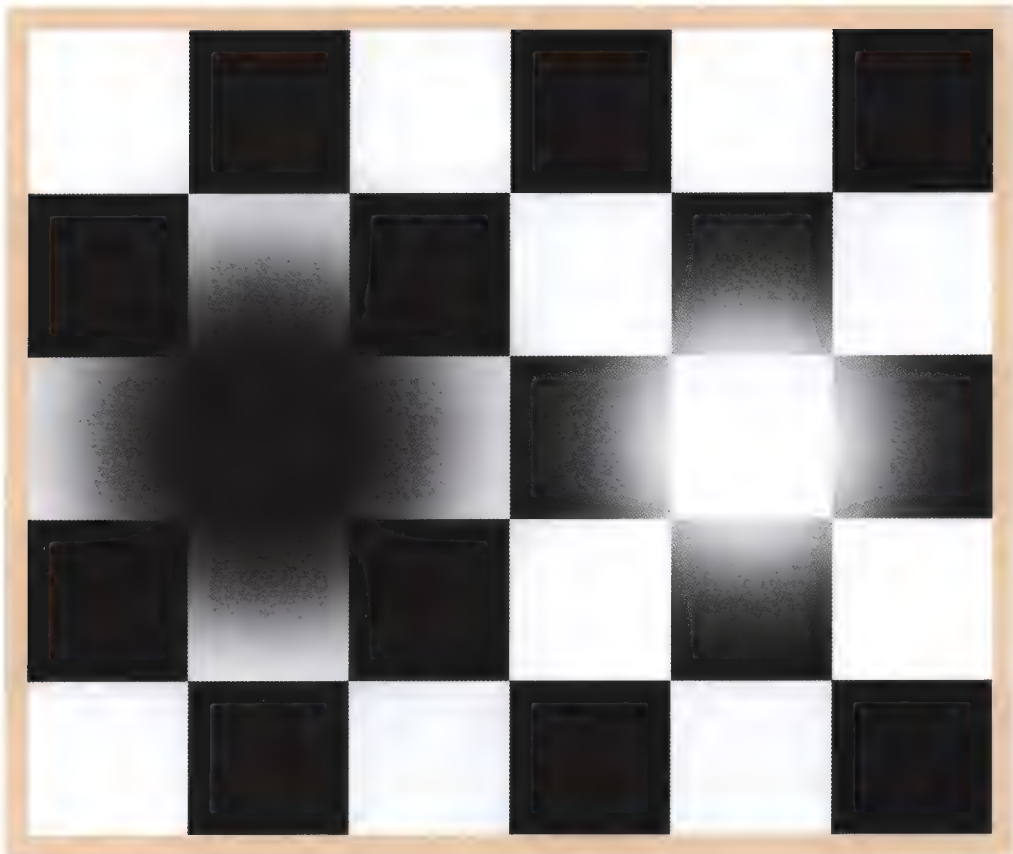
As you move your eyes around this image, illusory black dots abruptly appear or disappear at the intersections. See what happens when you stare at either the white or black fixation spot.

Filling-In Illusion



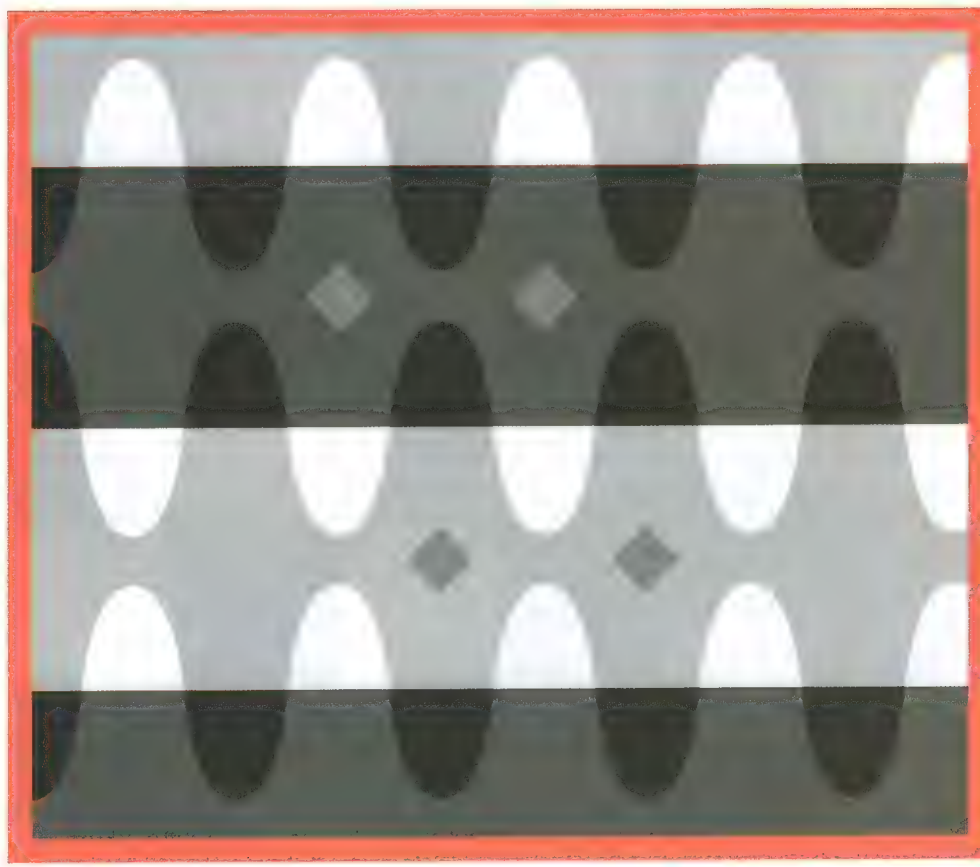
Stare steadily at the dot in the center of the left figure and the smudge will disappear. This will not happen with the figure on the right.

Checkers



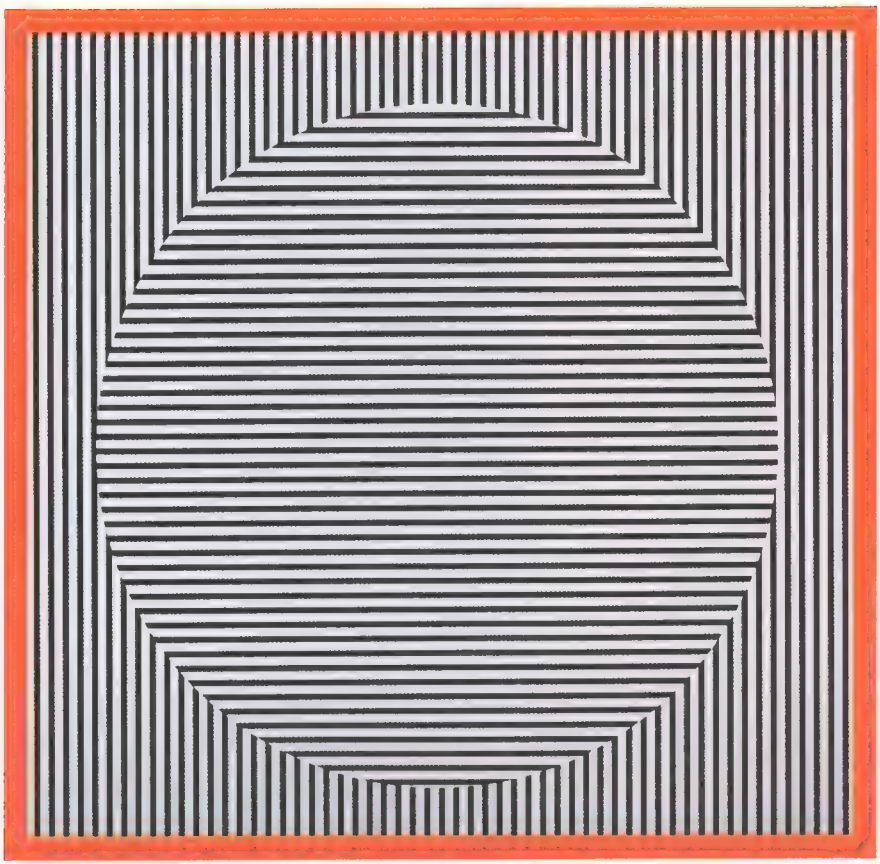
Does the white check within the fog appear brighter than the surrounding white checks? They are both identical whites.

Adelson's Snake Illusion



The four diamond shapes are identical grays! Check them by covering everything but the diamond shapes.

A Rotating Brightness Illusion

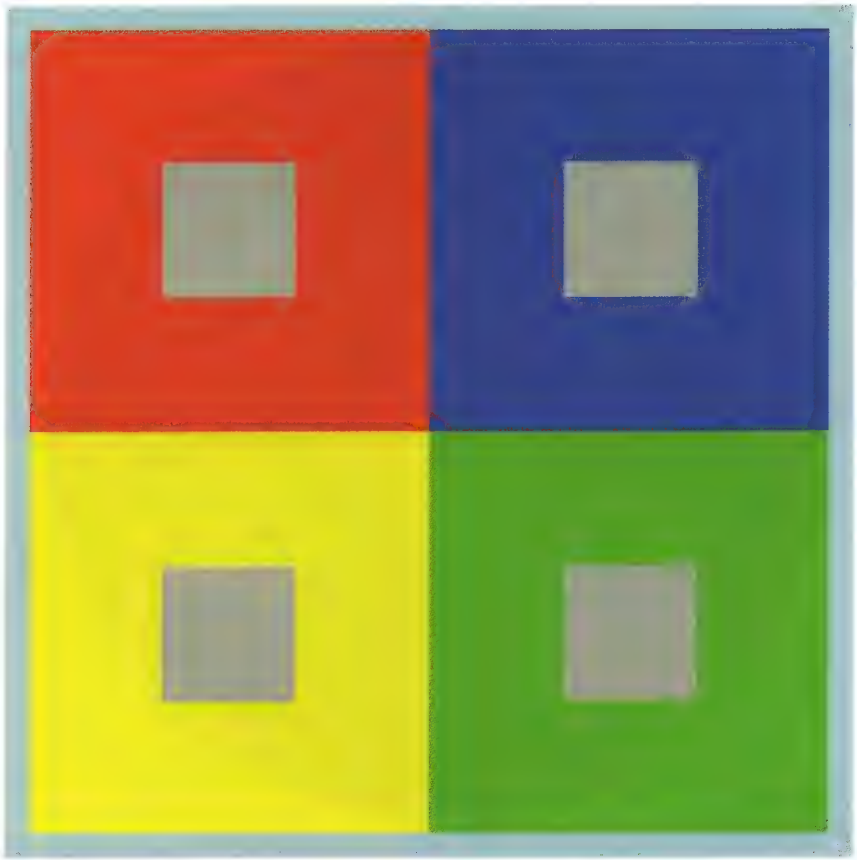


Rotate this figure and the brightness of the center section will appear to change.

Chevreul Illusion

There are several adjacent rectangles progressively going from light to darker shades. Place a pencil over the border of any two rectangles, and the two adjacent rectangles will appear the same.

Color After-Effect

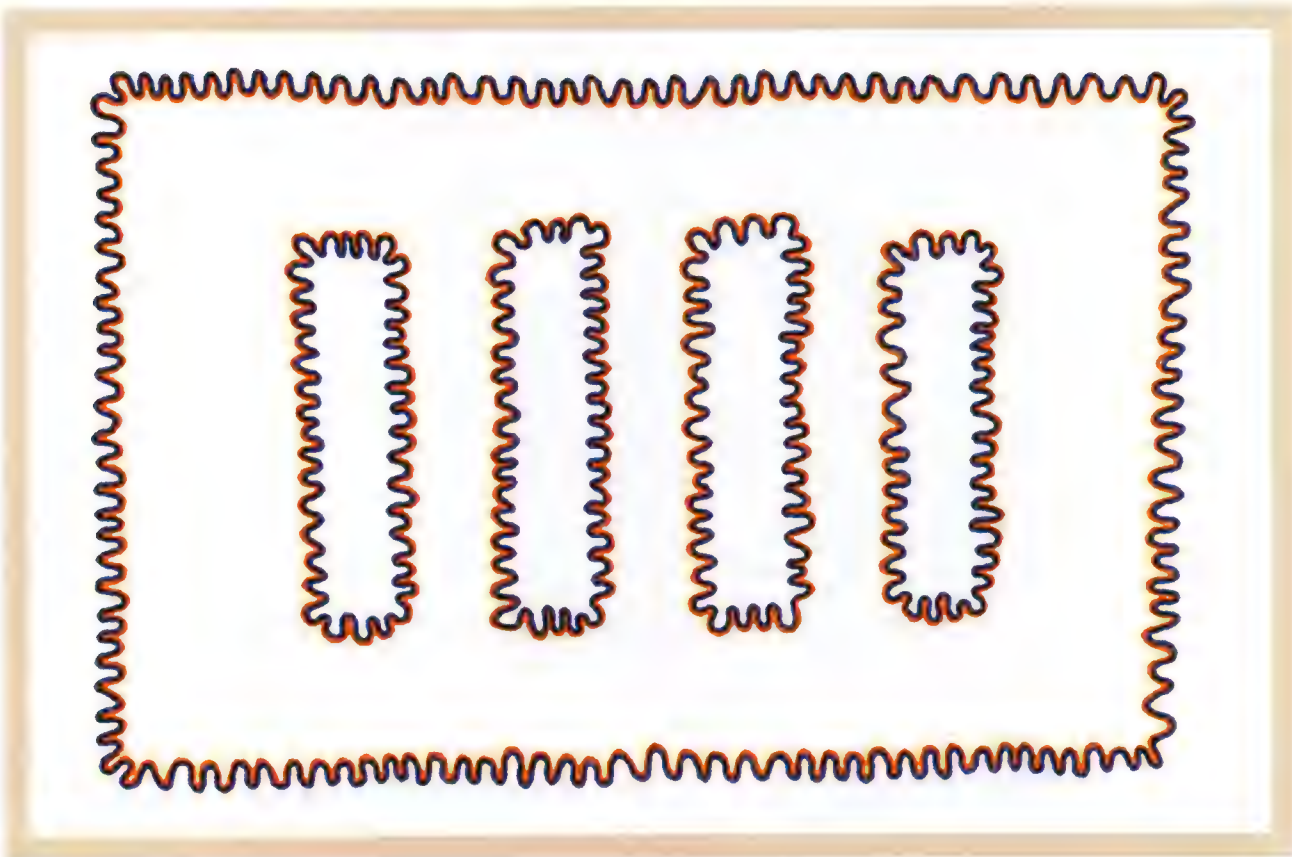


Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see all the squares in their complementary colors.

Subjective Colors 1

Slowly turn this image and you will see some faint colors.

Pinna's Watercolor Illusion

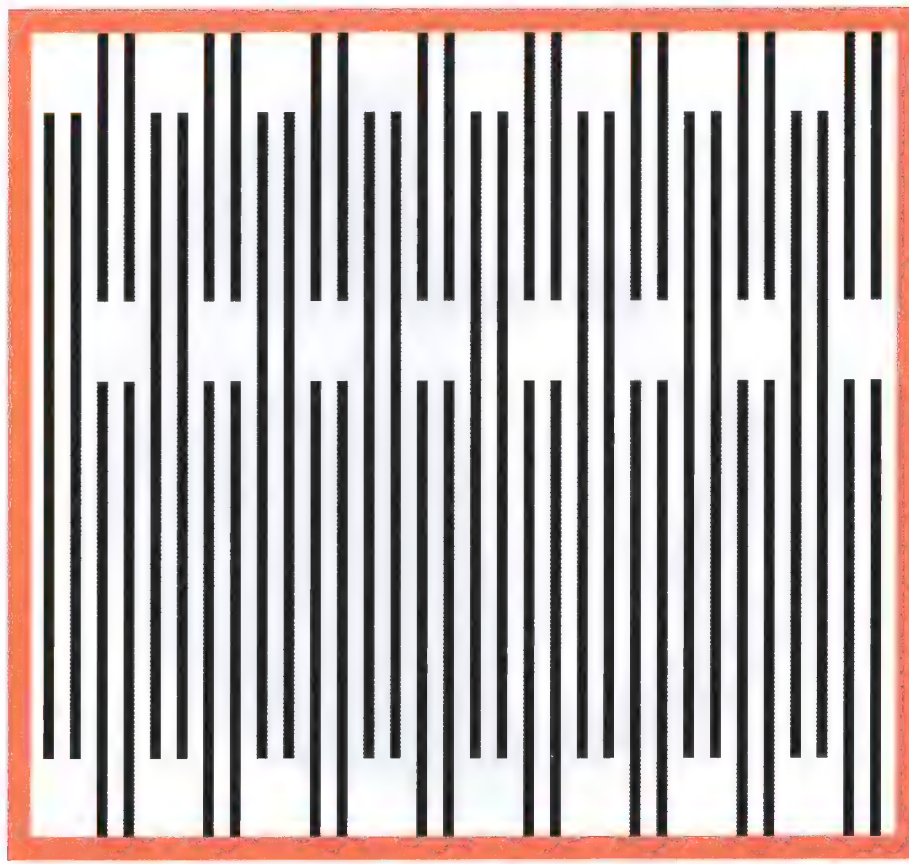


Do you perceive a faint colored hue within the borders?
Check, and you will see that it is white.

Colored Spiral Illusion

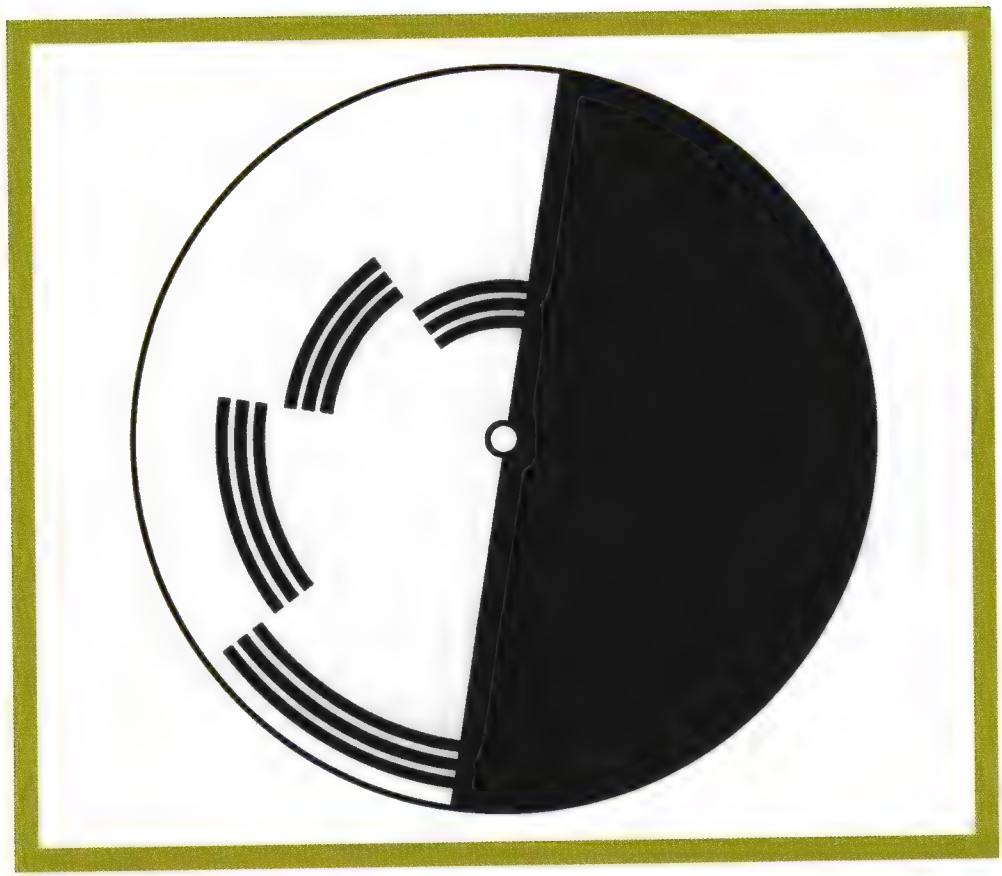
Believe it or not, the two spirals are identical in color!

Subjective Colors 2



Move your eyes around this pattern and you will see some faint colors.

Benham's Disk

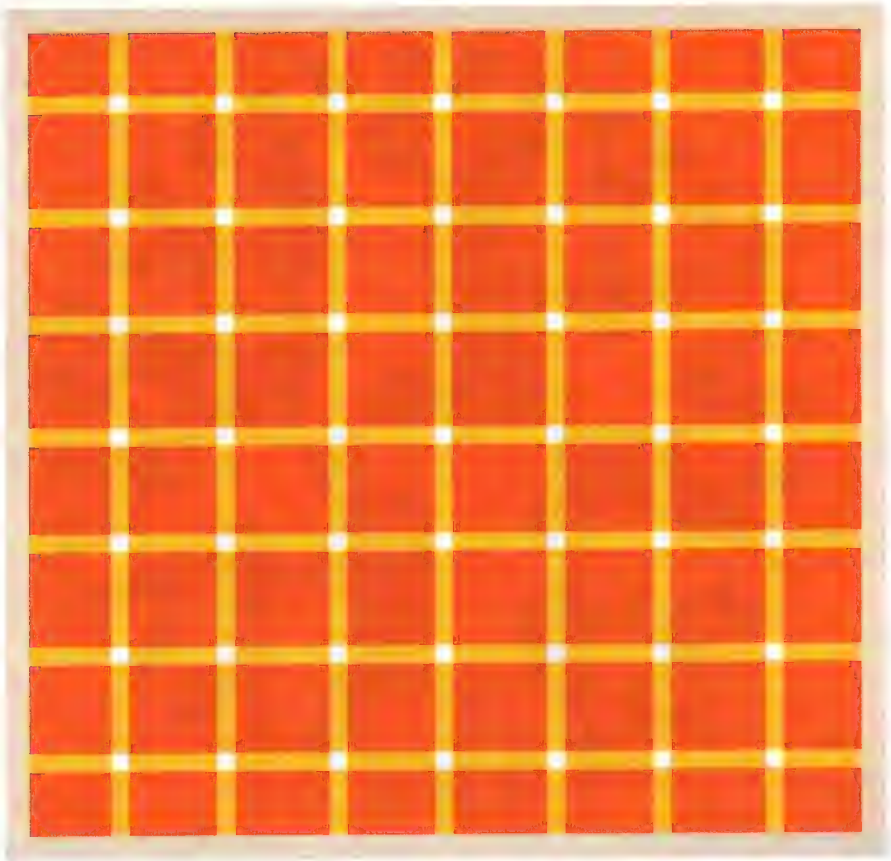


If you steadily spin this disk you will see faint colors.

Brucke Disk

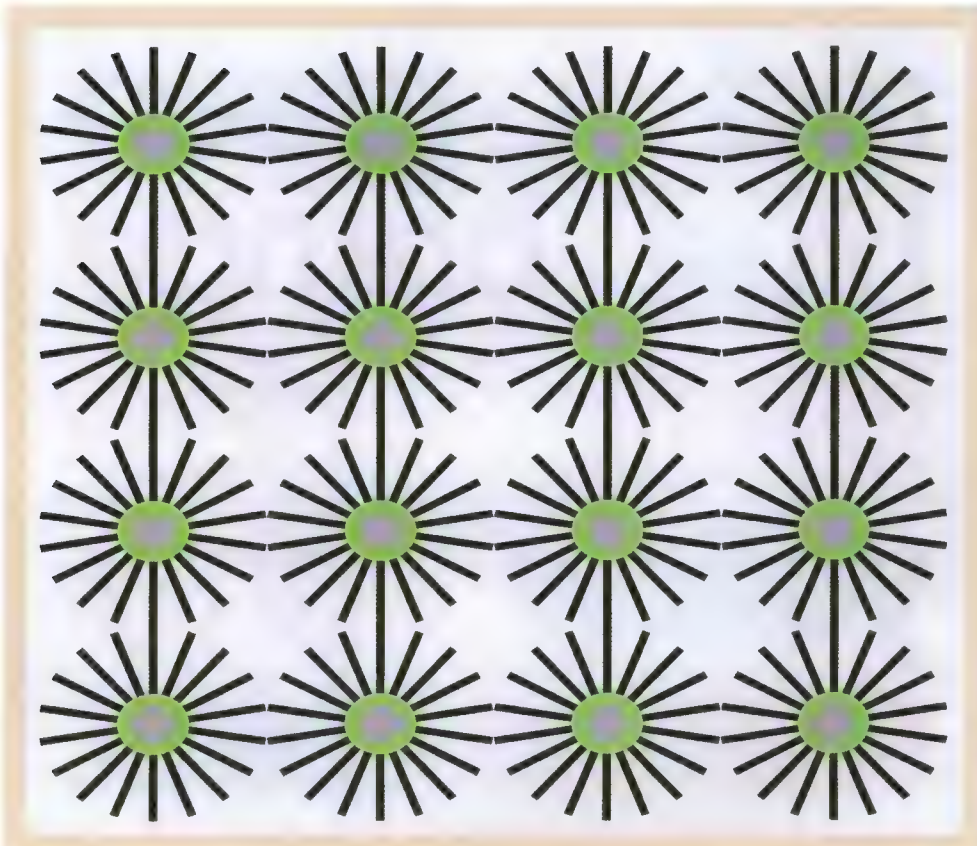
Steadily spin this disk and you will see colors.

Hermann Grid Variation



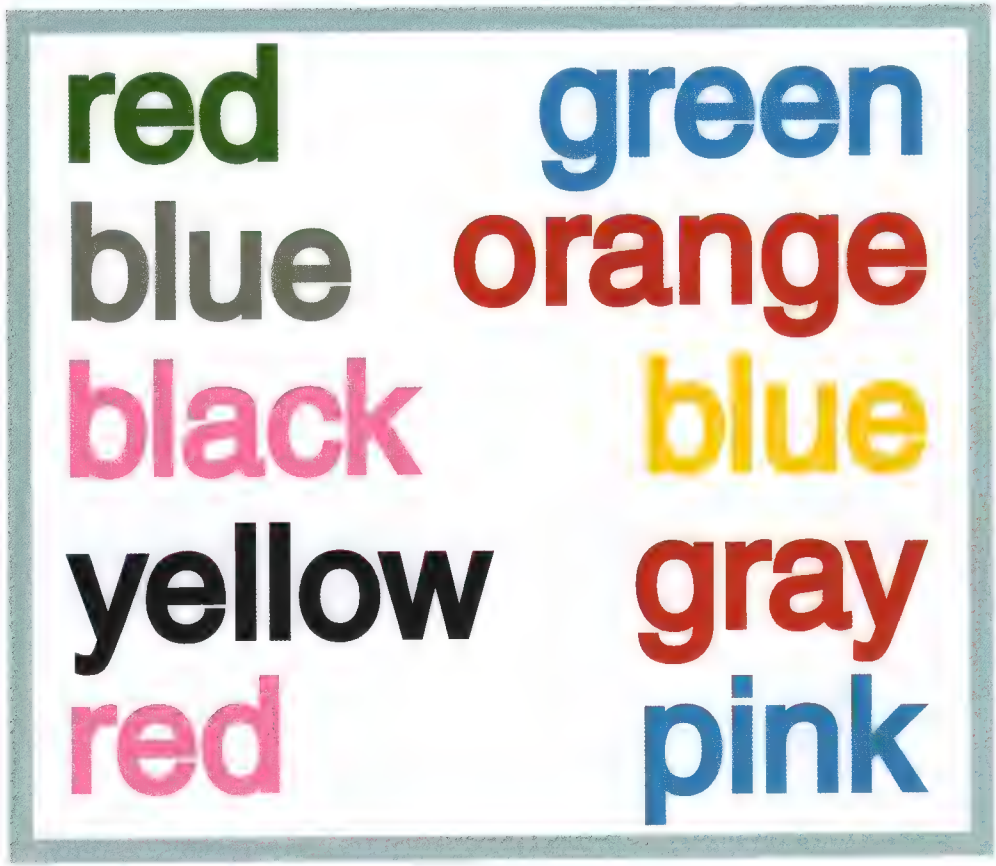
Move your eyes around this image, and you should see lilac scintillation.

Pinna's Scintillating Luster Illusion 2



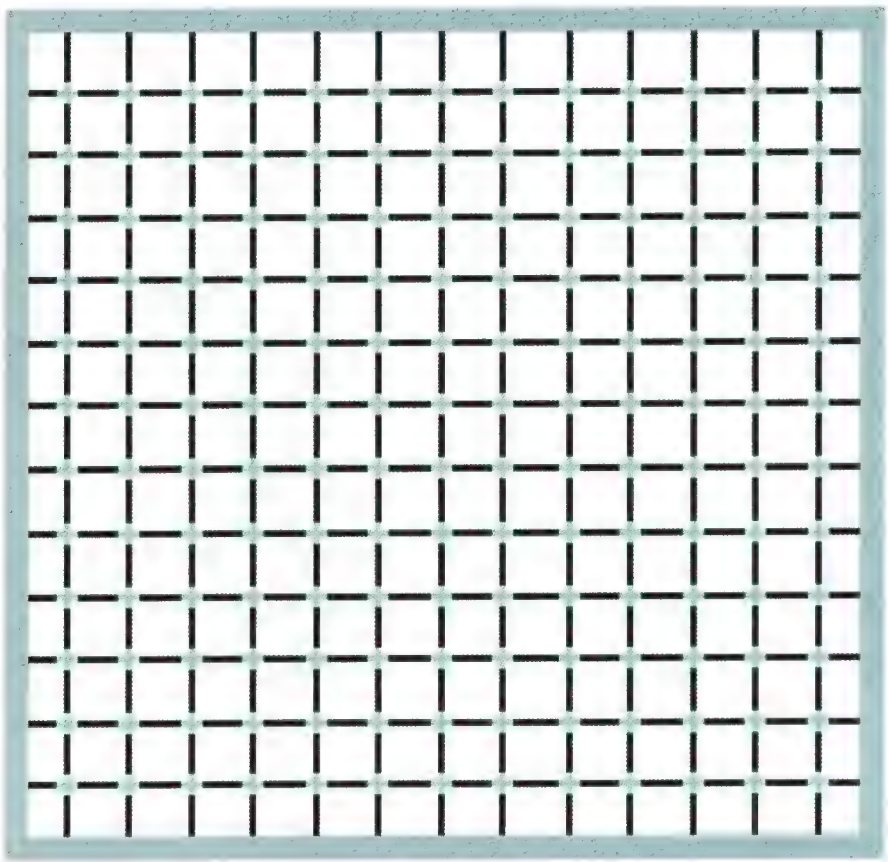
As you move your eyes around this image it will appear to scintillate in color.

Stroop Effect



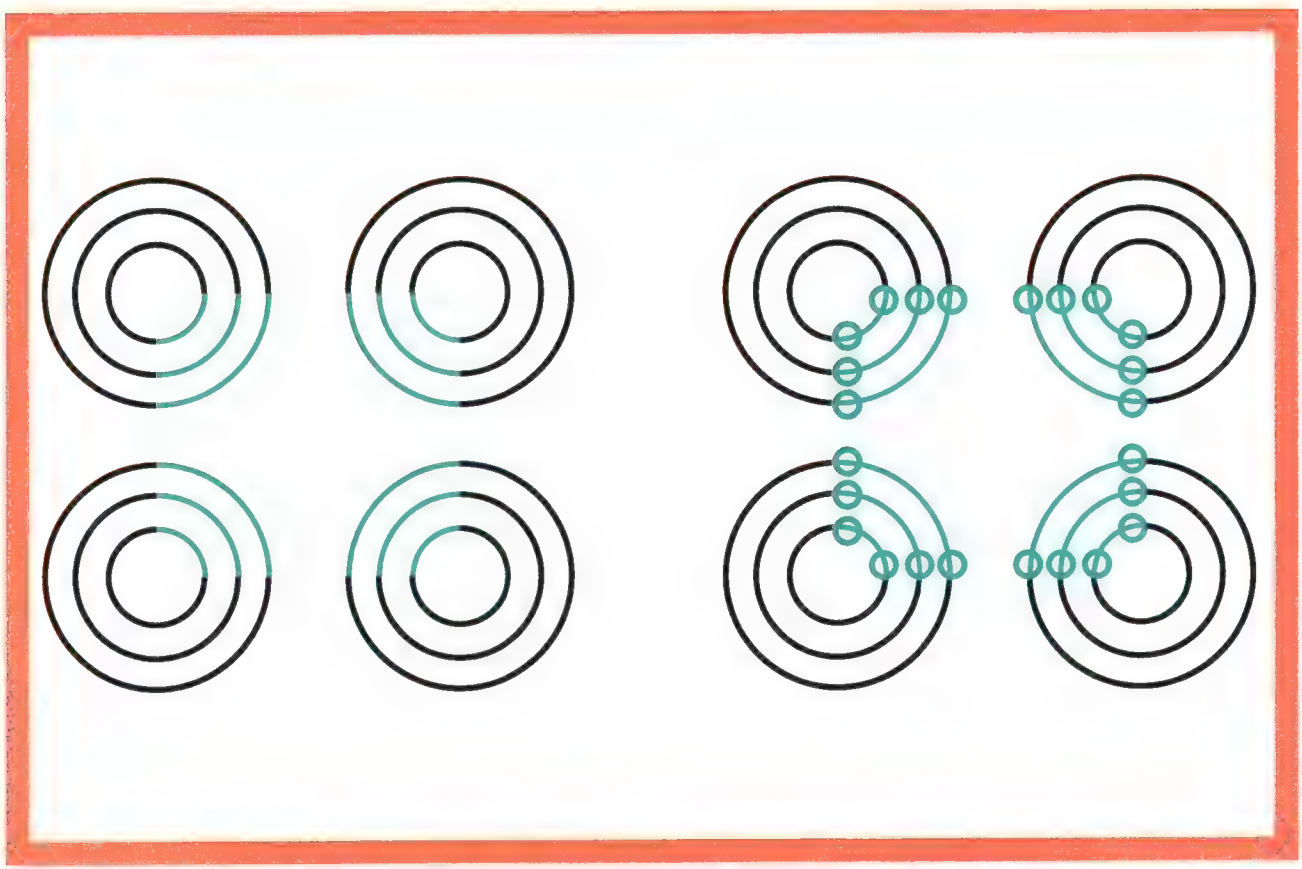
As fast as you can, say the color of the words, but do not READ the words. It is not as easy as you might think.

Neon Color Spreading 1



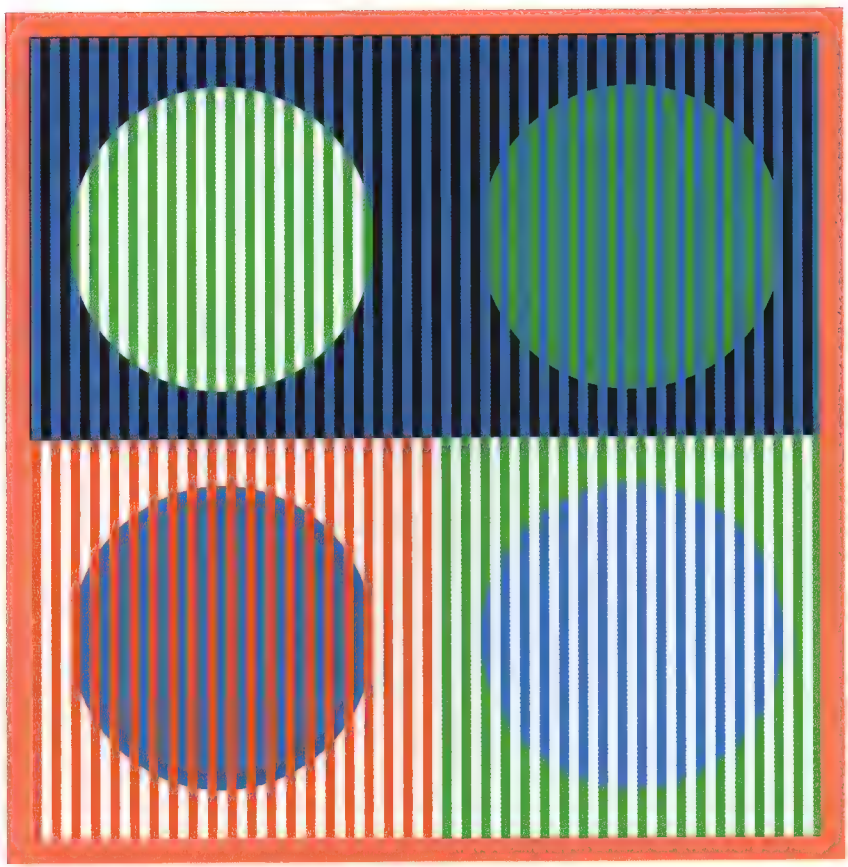
Do you see blue disks? There are only blue crosses.

Neon Color Spreading 2



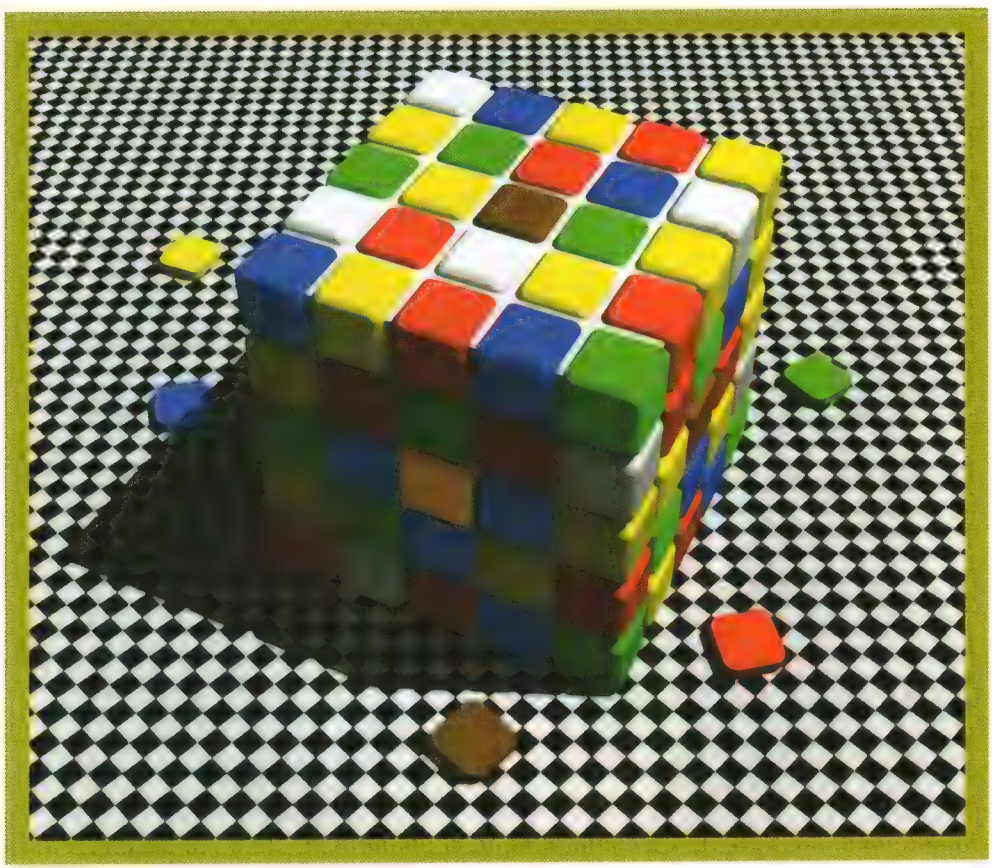
Do you perceive a faint bluish square? First of all, there is no square as there are no borders to define it. Secondly, there is no blue in the square. Only the small semicircles are blue in the left diagram. Check it through a peephole.

Color Contrast



The green, red, and blue appear to be different shades, when placed against a different surrounding color.

Rubik's Cube Color Illusion

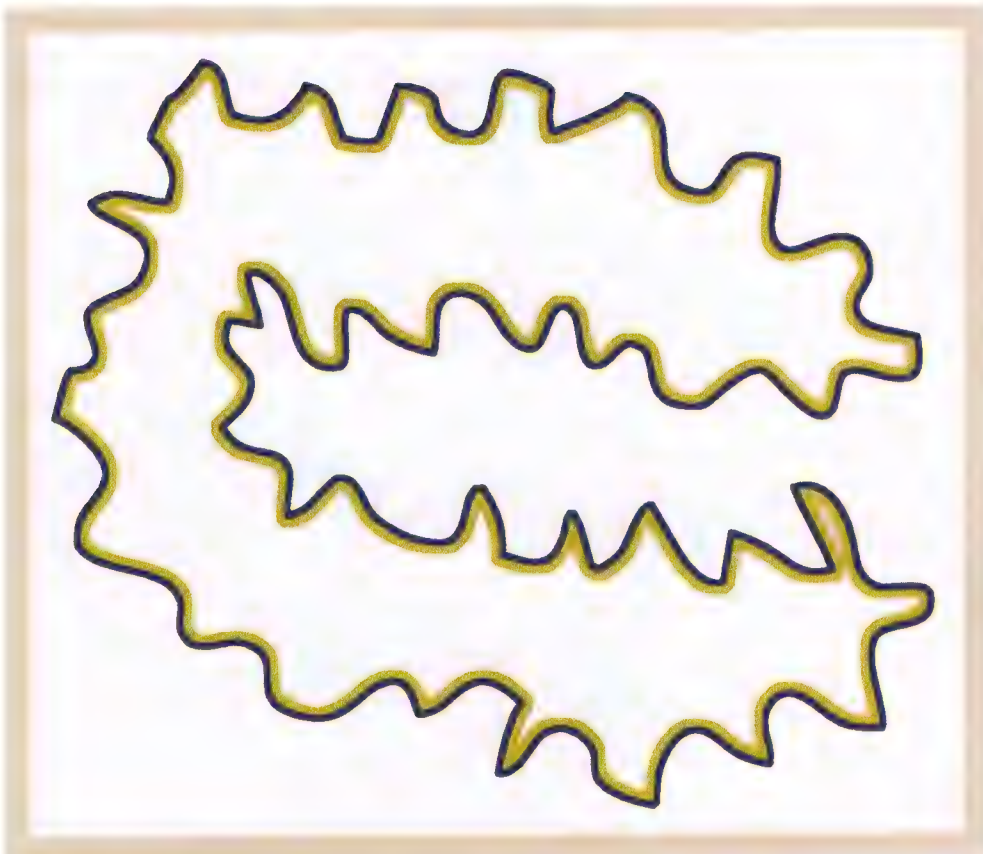


This is an absolutely amazing color illusion. The yellow check in the shadow is identical in color to the brown check on the top. Check it yourself by viewing the two squares through a small peephole, which covers the surrounding checks.

Fluttering Hearts

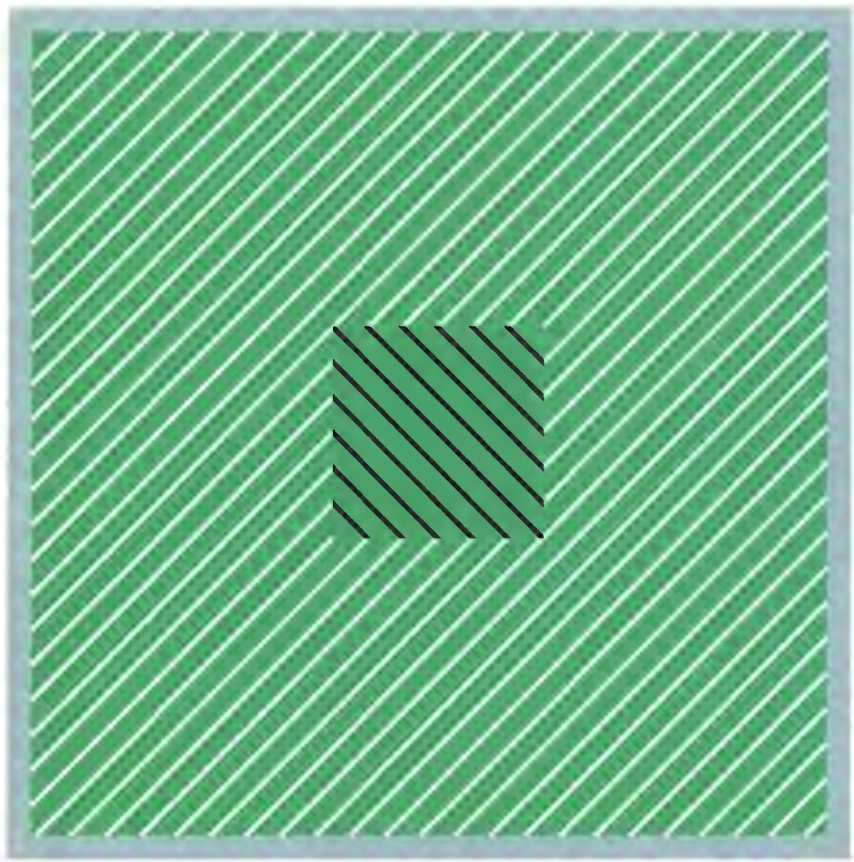
Look at this image in very dim light. Shake the image in small circular movements, which will make the blue spots appear to leave a blue trail on the ground.

Neon Color Spreading 3



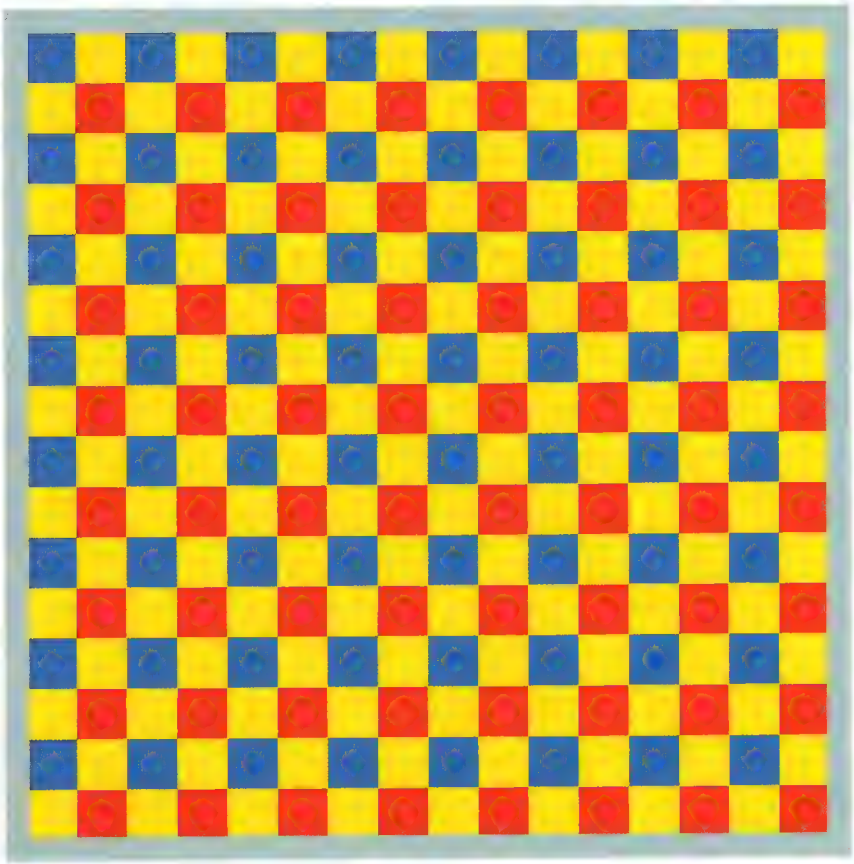
Do you perceive a faint color within the border? There is no color there. Check it through a small peephole.

Color Assimulation



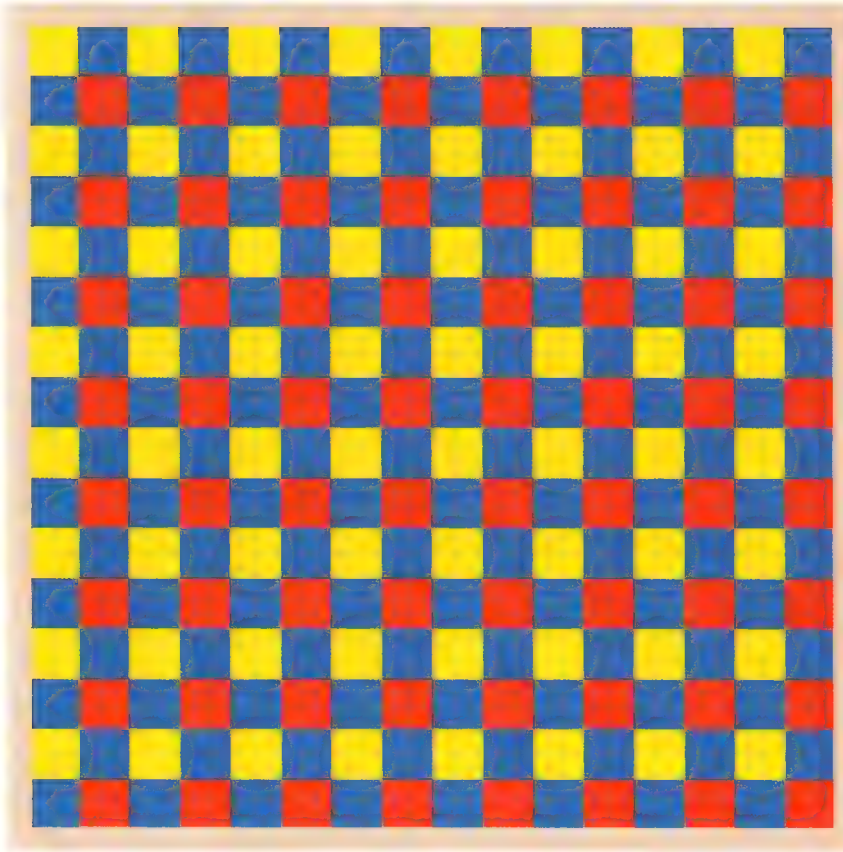
Does the middle green square appear darker than its surround? They are both identical shades of green.

Bezold Effect 1



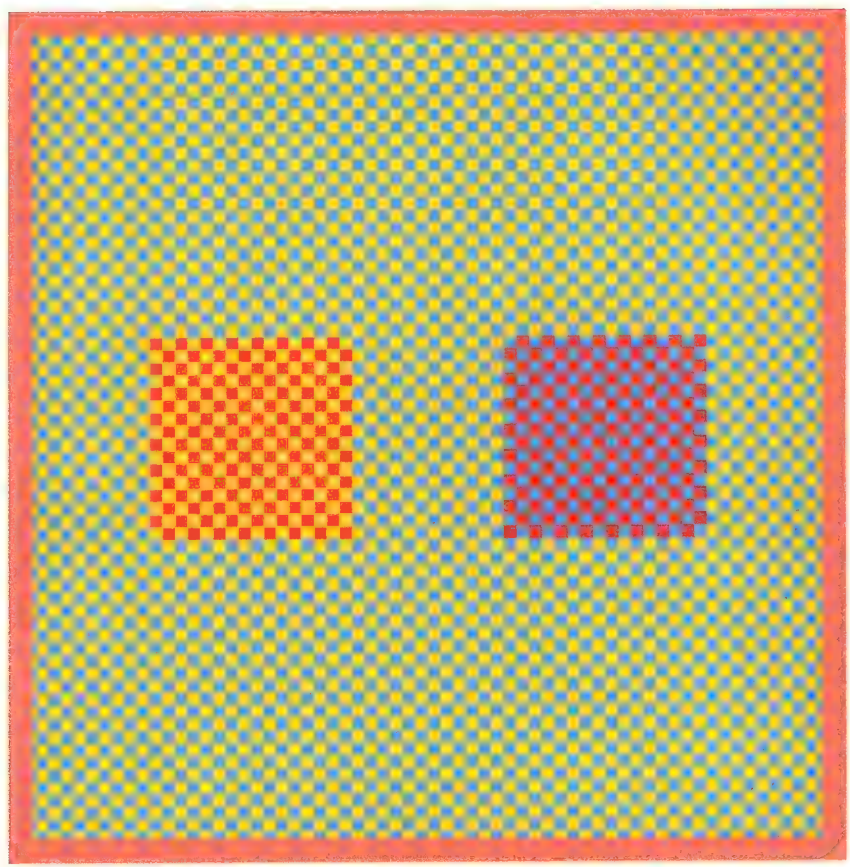
The red squares on this and on the adjacent page are both the same.

Bezold Effect 2



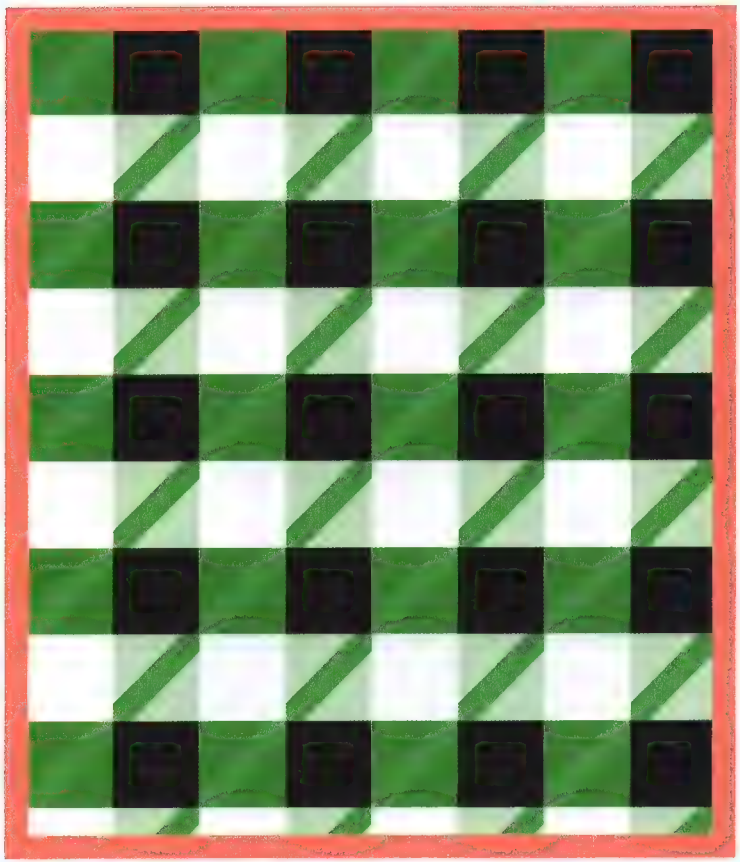
Compare the red squares with the red squares on the adjacent page. Do they appear different?

Bezold Effect 3



The red, blue, and yellow squares appear different depending on how they are surrounded.

Bamboos of Sagano

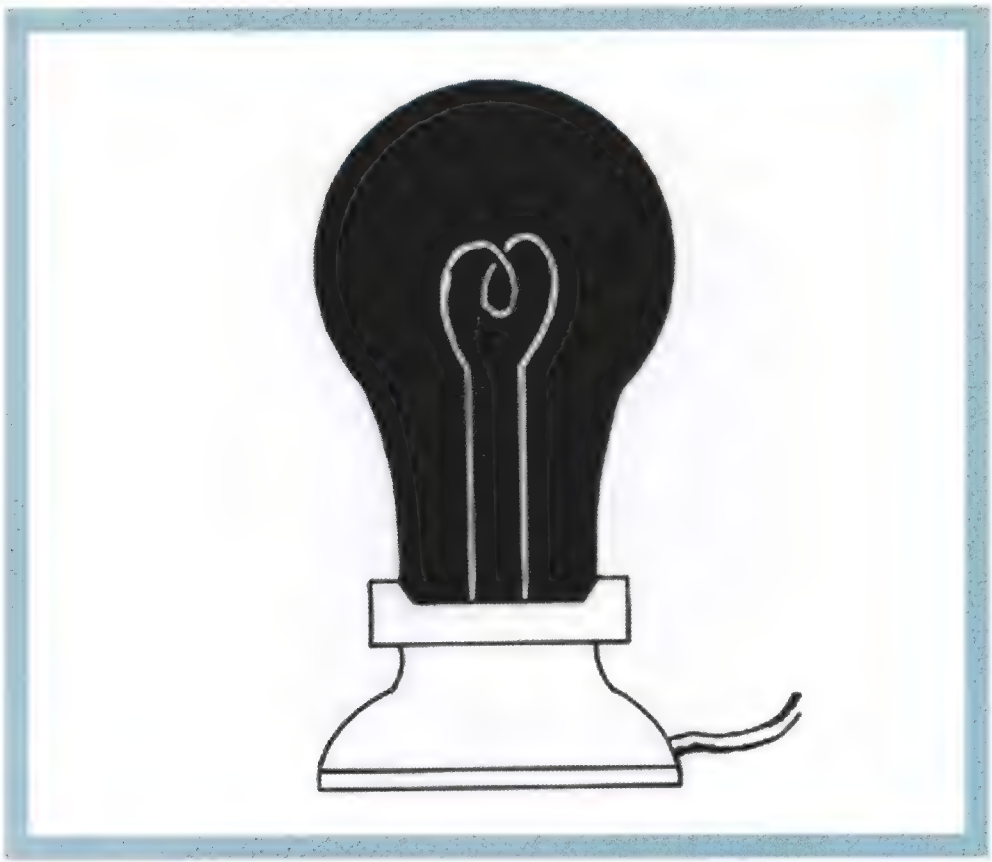


Do the diagonal green stripes appear light and dark?
They are identical throughout their length.

Glowing Angel

Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see a glowing angel.

The Glowing Lightbulb



Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see a glowing lightbulb.

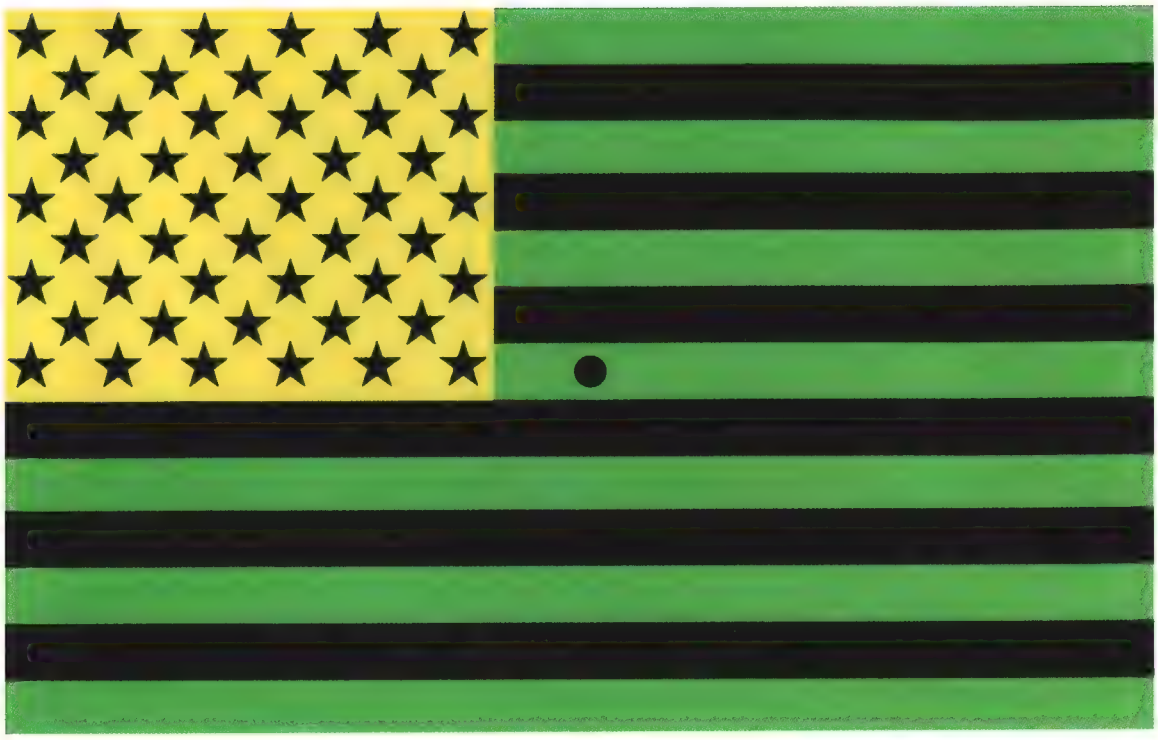
Glowing Ghost

Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see a glowing ghost.

A Glowing Red Heart

Steadily stare at this image for at least 30 seconds without averting your gaze.
Then quickly look at a blank white sheet of paper
and you should see a glowing heart in red!

A Glowing Flag

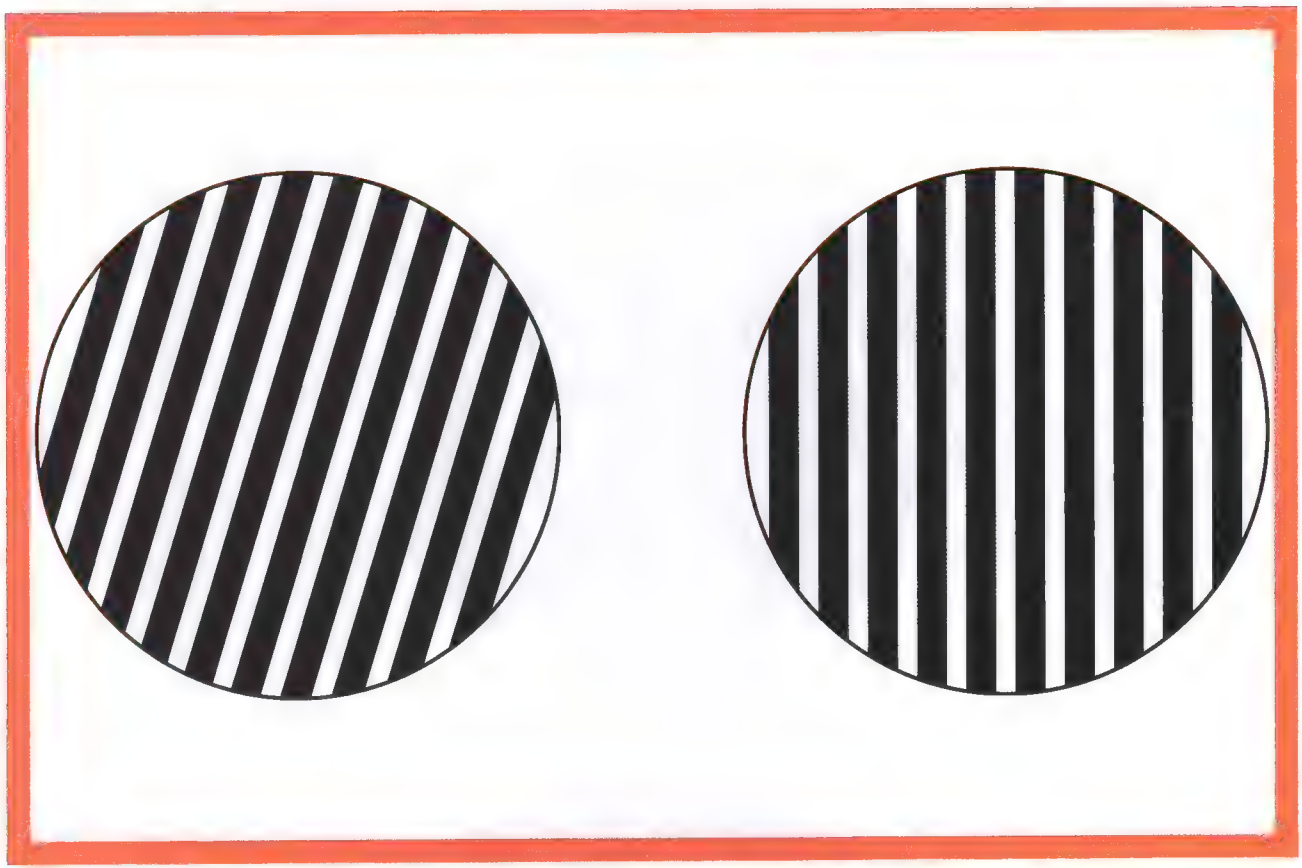


Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see a glowing flag in its proper colors.

Marilyn's Red Lips

Steadily stare at this image for at least 30 seconds without averting your gaze. Then quickly look at a blank white sheet of paper and you should see Marilyn's lips glowing in red.

Tilt Aftereffect



Stare steadily at the left diagram for at least two minutes without averting your gaze. Then quickly look at the right diagram. The lines will appear to tilt in the opposite direction to the ones on the left.

A Mouse Playing Hide and Seek with a Cat

Can you find where the mouse is hiding from the cat?

Homage to William Shakespeare

Two minstrels pay homage to sixteenth-century English playwright William Shakespeare.

Desert Mirage

A strange type of desert mirage.

A Change of Mind

It seems that the artist changed his mind about what he was going to draw.

A Strange Coincidence

How is the fox hiding from the hunters?

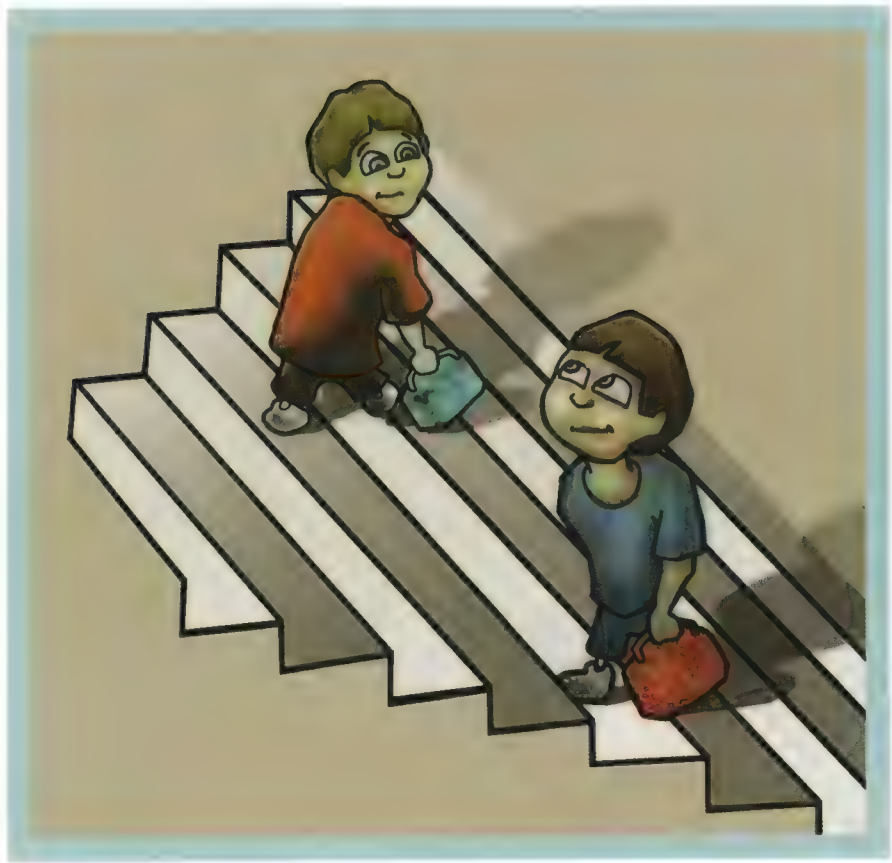
Two Bodies and Only One Head

How is this possible?

Arcimboldo's Fruit Head

Do you see a man or a collection of fruit?

A Strange Twist



There is something twisted about these stairs. Can you find it?

Bull's-eye

Stare at these rings and they will change direction.

The Tomb of Napoleon

Can you find the standing figure of Napoleon?

Tessellating Fish

If you stare at the fish, they will reverse direction.

Voltaire's Map

Can you find Voltaire's head in this map of eighteenth century Paris?

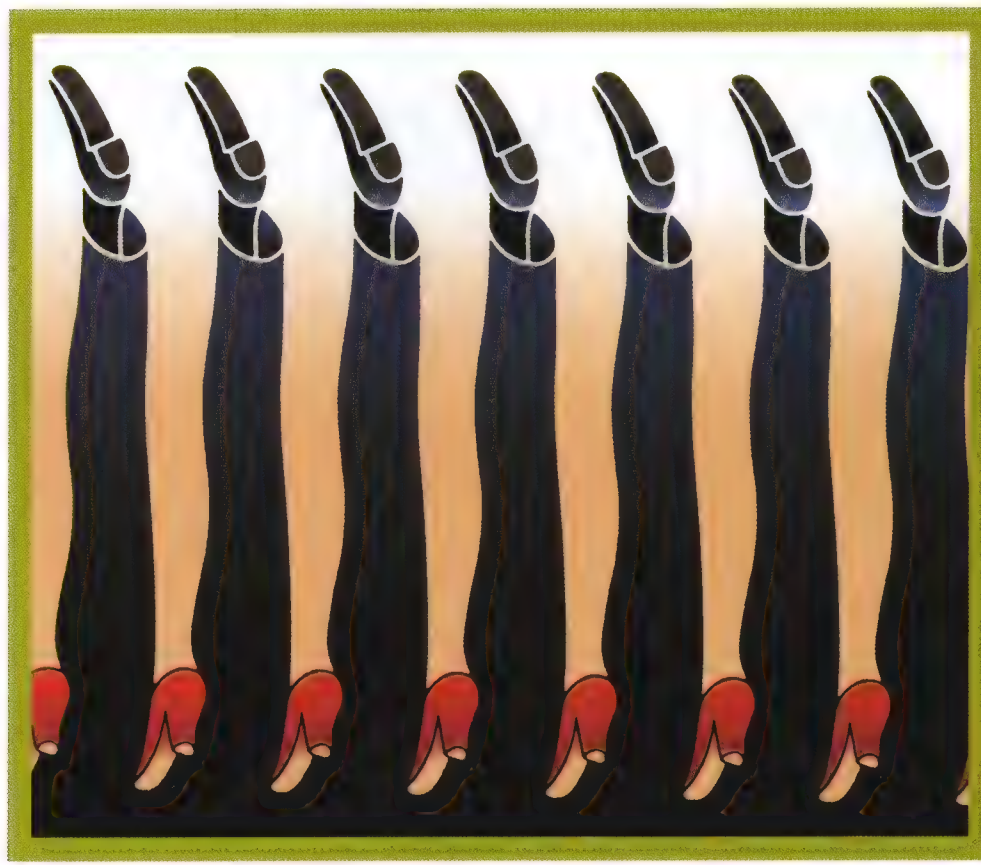
Saint George and the Dragon

Can you find a portrait of both Saint George, and his battle with a dragon?

A Painting in the Background

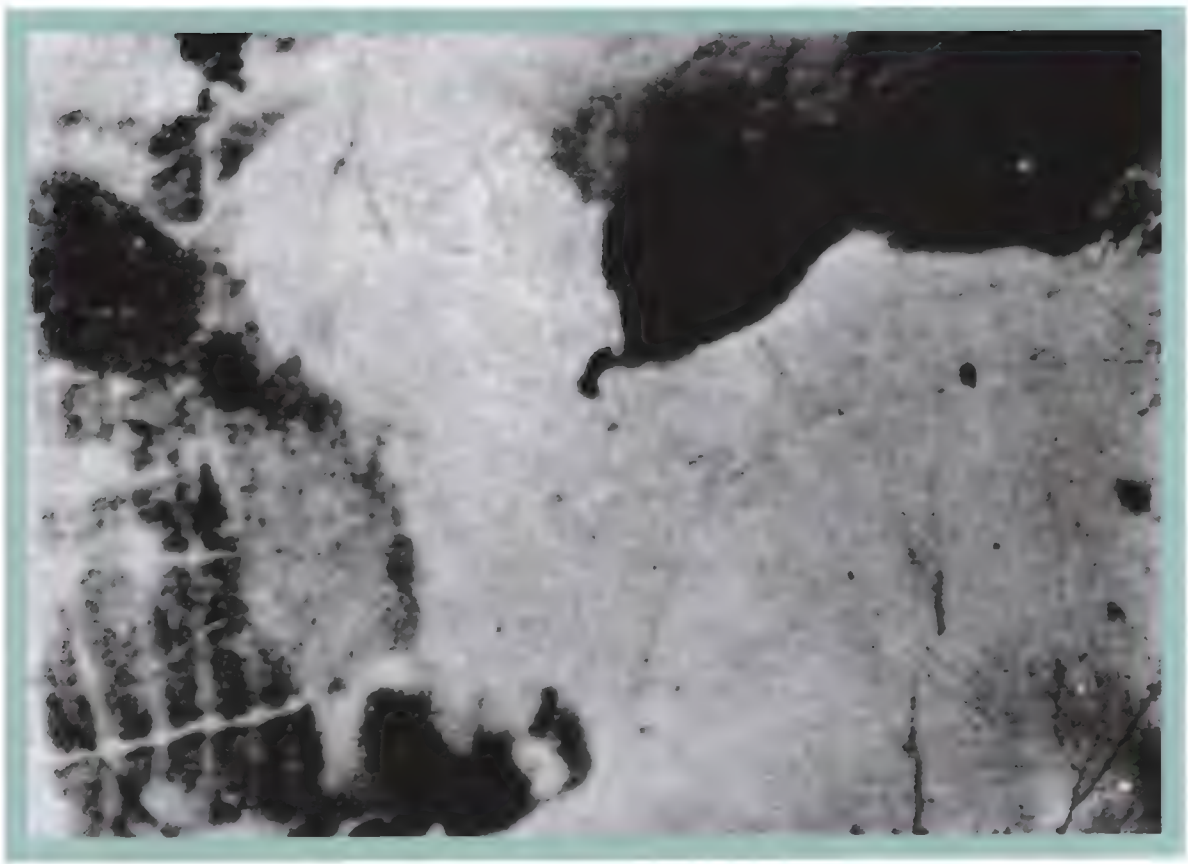
There is something funny about what he is painting.

Legs of Two Different Genders



Can you find both male and female legs?

A Figure/Ground Illusion



Can you find the cow's head?

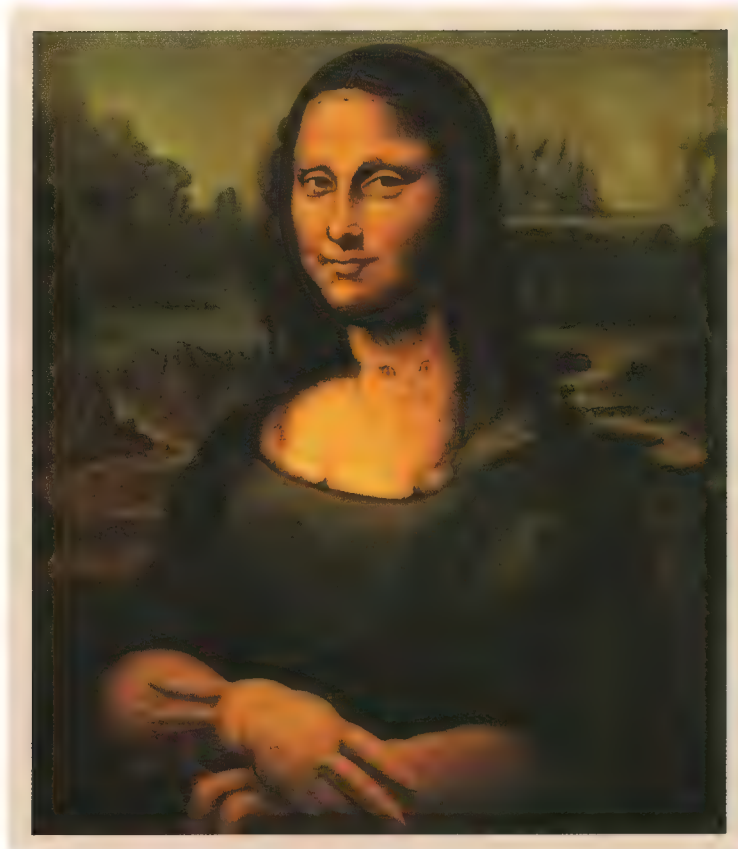
A Playwright's Vision

A playwright has to envision not only the stage, but also his audience.

The Old Woman/Young Woman Illusion

Can you find both an old woman and a young woman?

Mona Lisa is Hiding Some Things!



What is hidden in this picture of Mona Lisa?

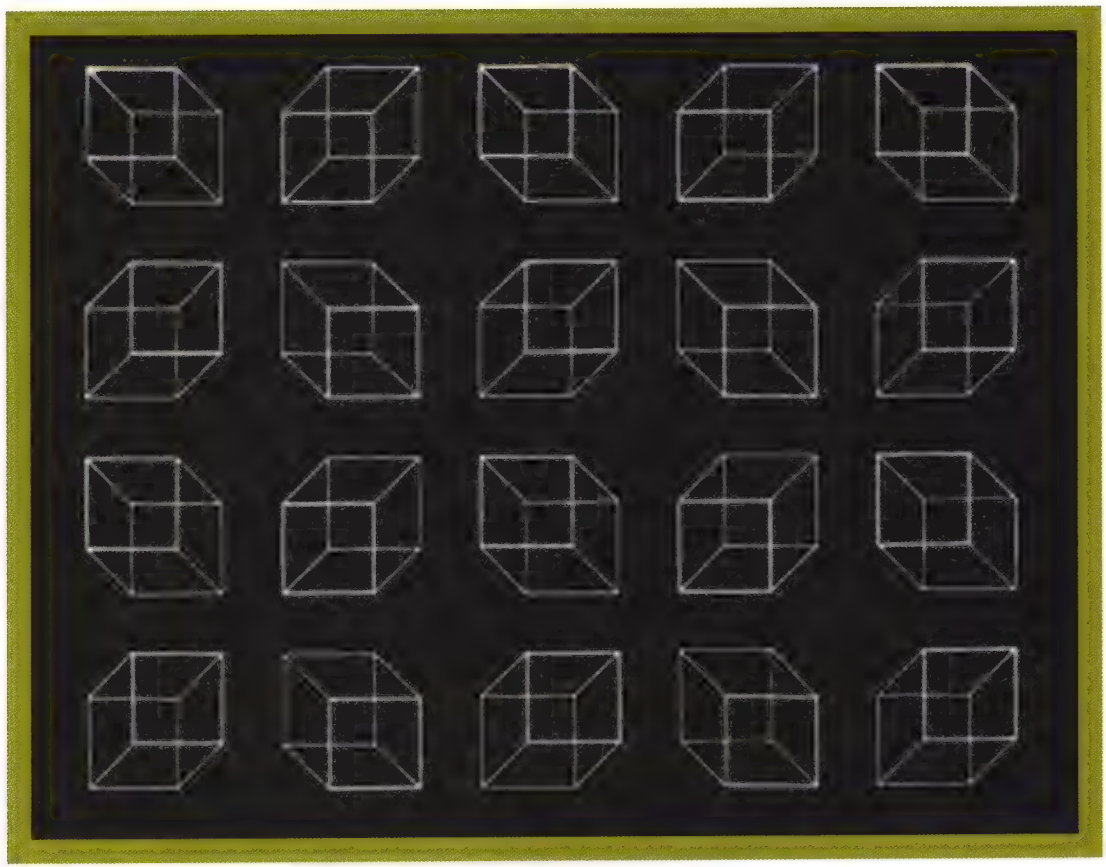
A Change of Direction

If you stare at this horse, it will face in another direction.

A Figure/Ground Illusion

Can you find both the palm trees and the boats?

All at Once



Stare at these cubes and they will all spontaneously reverse direction.

The Flowering of Love

Can you find the couple hiding in the pedals of the rose?

What's This?

What is going on here?

All is Vanity

The future does not look too bright for this woman.

The Invisible Neptune

Can you find both Neptune and his dolphins?

Marlene Dietrich

Can you find both the head of Marlene as well as her sitting in a train station?

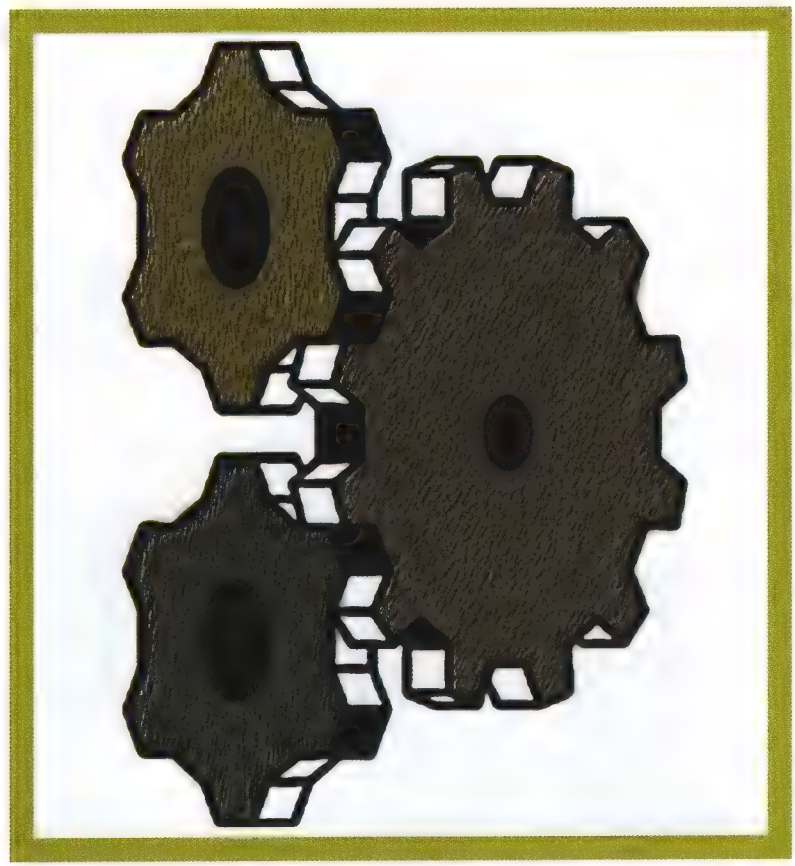
Ten Bodies and Only Five Heads

How can ten bodies have only five heads?

A Strange Coincidence

To which body does this head belong?

A Strange Meshing of Gears



Will these gears really work?

Climbing the Face of the Mountain

These climbers are literally climbing the face of the mountain.

Kim's Paradox

Is this word true or false?

Homage to Leonardo da Vinci

Is Leonardo da Vinci drawing a scene of a mule and rider or his own profile?

Corporal Violet

Can you find the three profiles hiding in the leaves?

Figure/Ground Illusion

Can you find the bearded man?

Death Lurking

Can you find the hidden skull?

The Map of Christopher Columbus

Can you find the famous American Explorer Christopher Columbus in this map?

A Portent of Danger

Is there danger lurking for this couple?

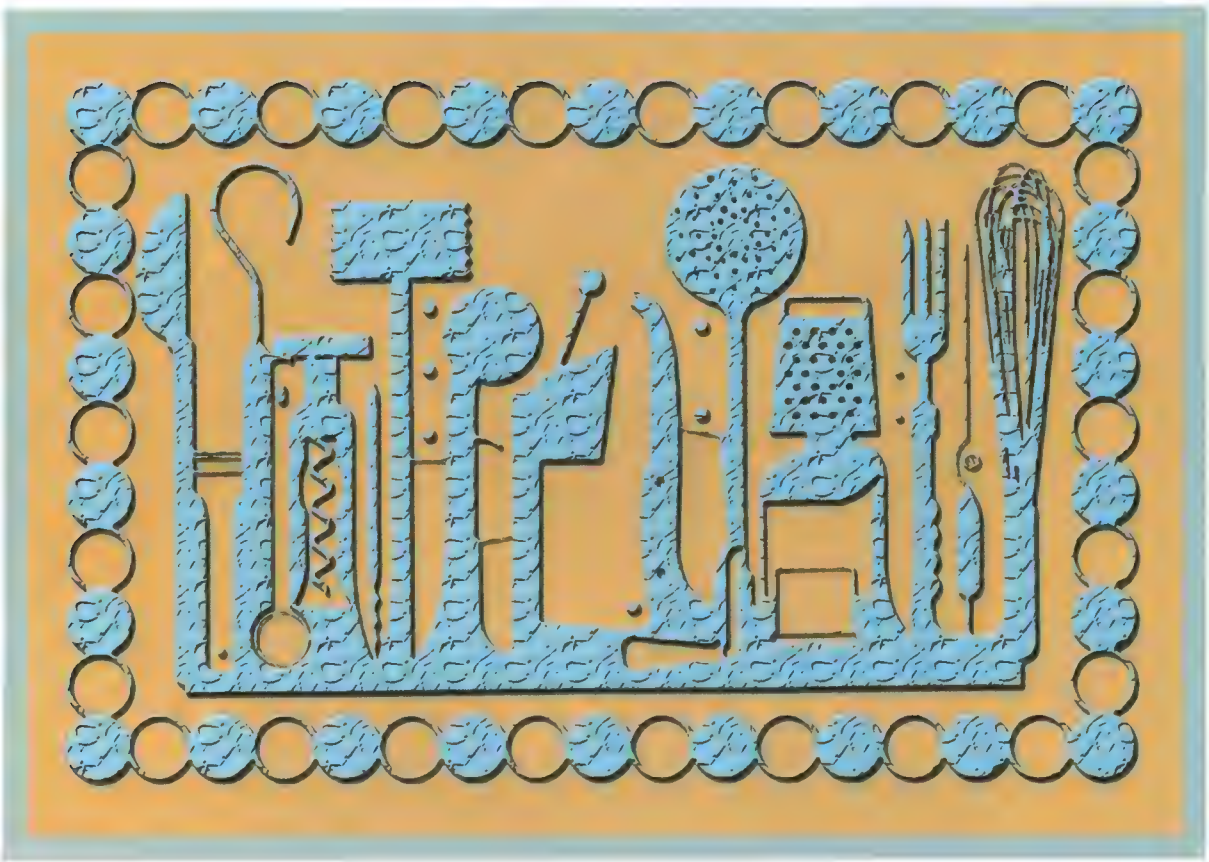
Let Sleeping Dogs Lie

On this island, they have a saying: "Let sleeping dogs lie."

The Librarian

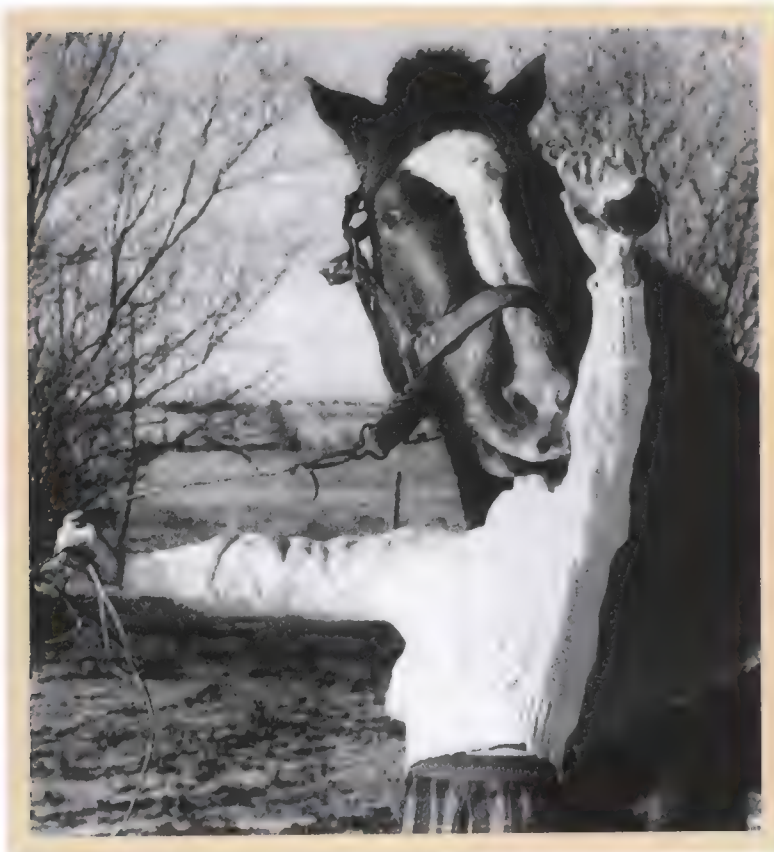
Is this man well-read?

Figure/Ground Illusion



Can you find all the kitchen utensils?

Headless Horse Woman



This is what happens when you horse around.

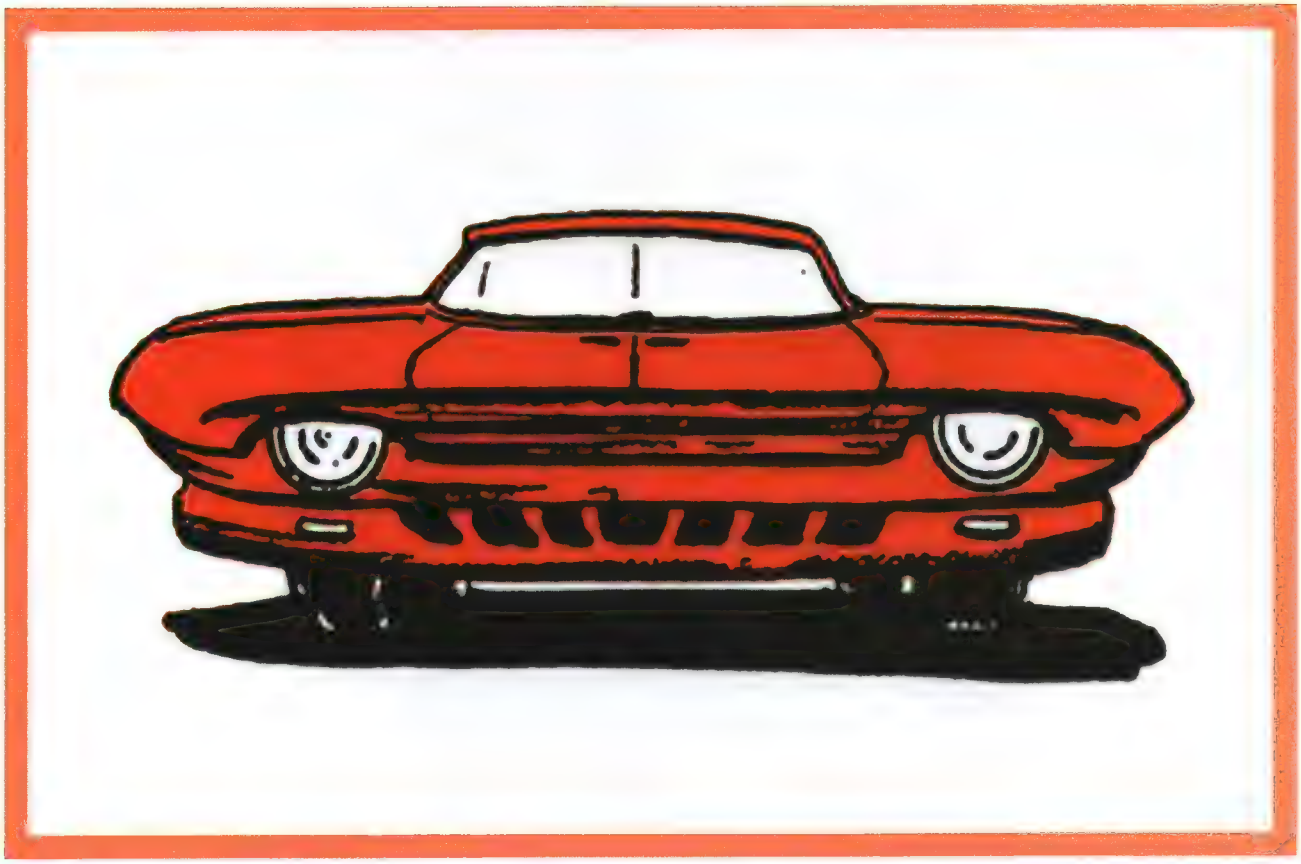
The Thiery Figure

Stare at this figure and it will reverse in depth.

The Woman with Closed Eyes

If you stare at this woman long enough she will open her eyes.

Two Cars in One

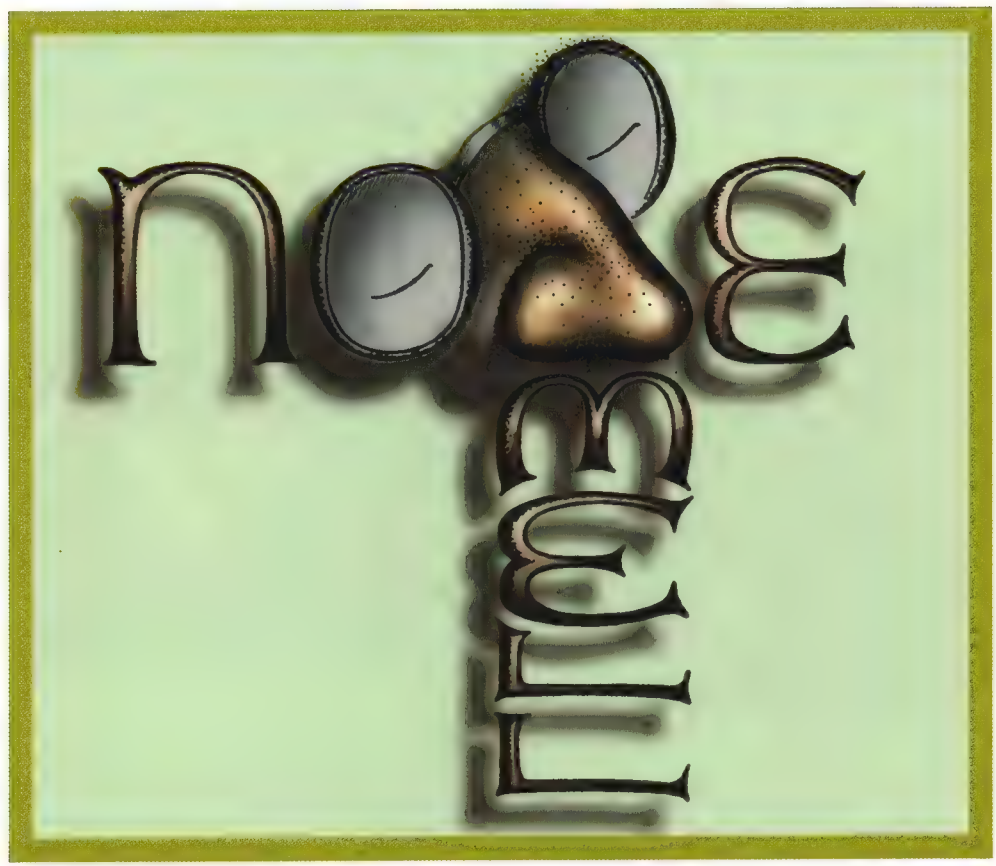


Can you find both cars?

Hollywood

You can see actor James Dean and various icons of Hollywood.

Smell



Can you find the words "nose" and "smell" as well as the nose?

Taste

Can you find the word "tongue" hidden in the word "taste"?

Touch

Can you find the words "touch" and "ouch"?

See

Can you find the words "see" and "eye" as well as the eye?

Hear

Can you find the words "hear" and "ear" as well as the ear?

Gesture of a Dancer

Can you find both the hand and the dancer?

Sara Nader

Can you find the woman that the man is serenading?

Hidden Figure

Can you find the Dalmatian dog that is hiding here?

The Goblet/Profile Illusion

Can you find the two profiles on either side of the vase?

Missing Child

Where is the baby hiding from the couple?

Escher in Italy

Can you find the hidden portrait of M.C. Escher?

Celeste

Angels are sometimes made of little angels.

Egyptian Profiles

You can see either two heads in profile on either side of the candlestick or one head behind the candlestick.

Bottom's Up!

There is something rather strange about this hole.

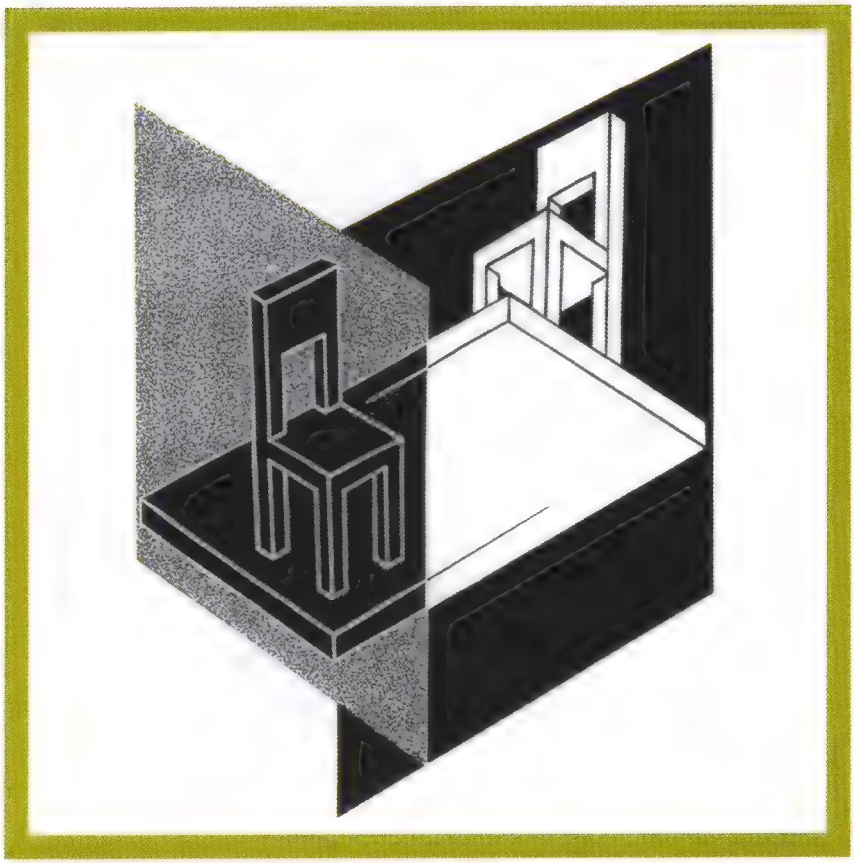
Father and Son-in-Law

Can you find both the father and the son-in-law?

The Festival of Bacchus

Watch the two people transform into the face of Bacchus as he brings them up.

A Wobbly Floor

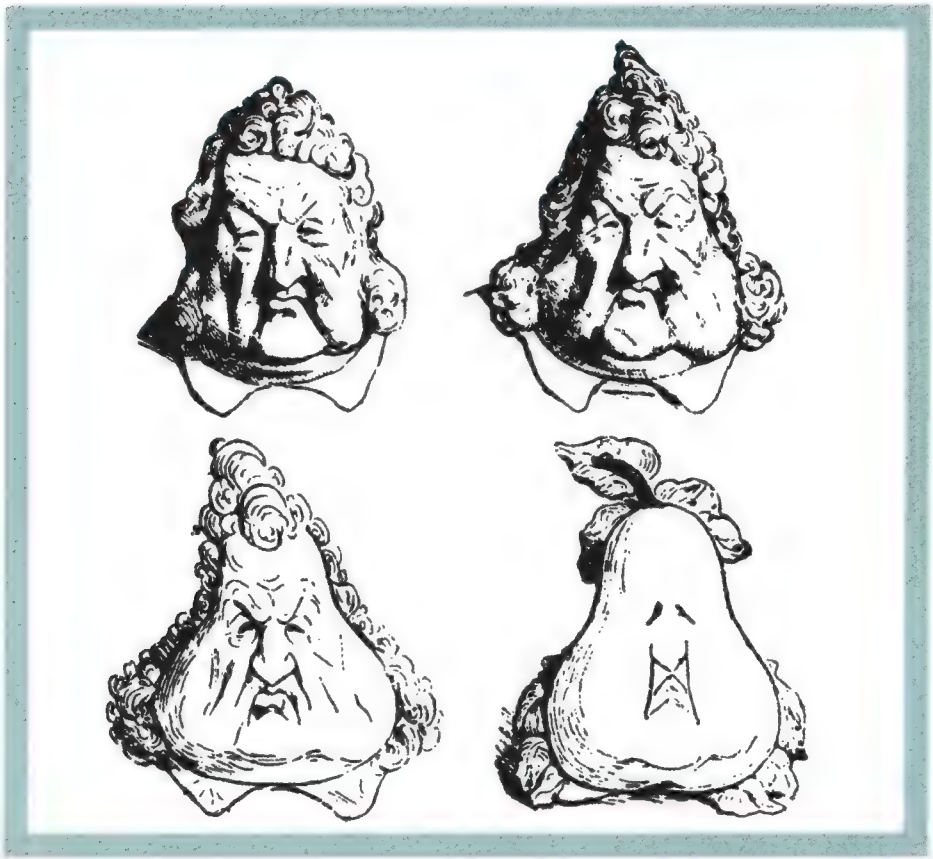


Are you seeing this floor from above or below?

Eskimo/Indian

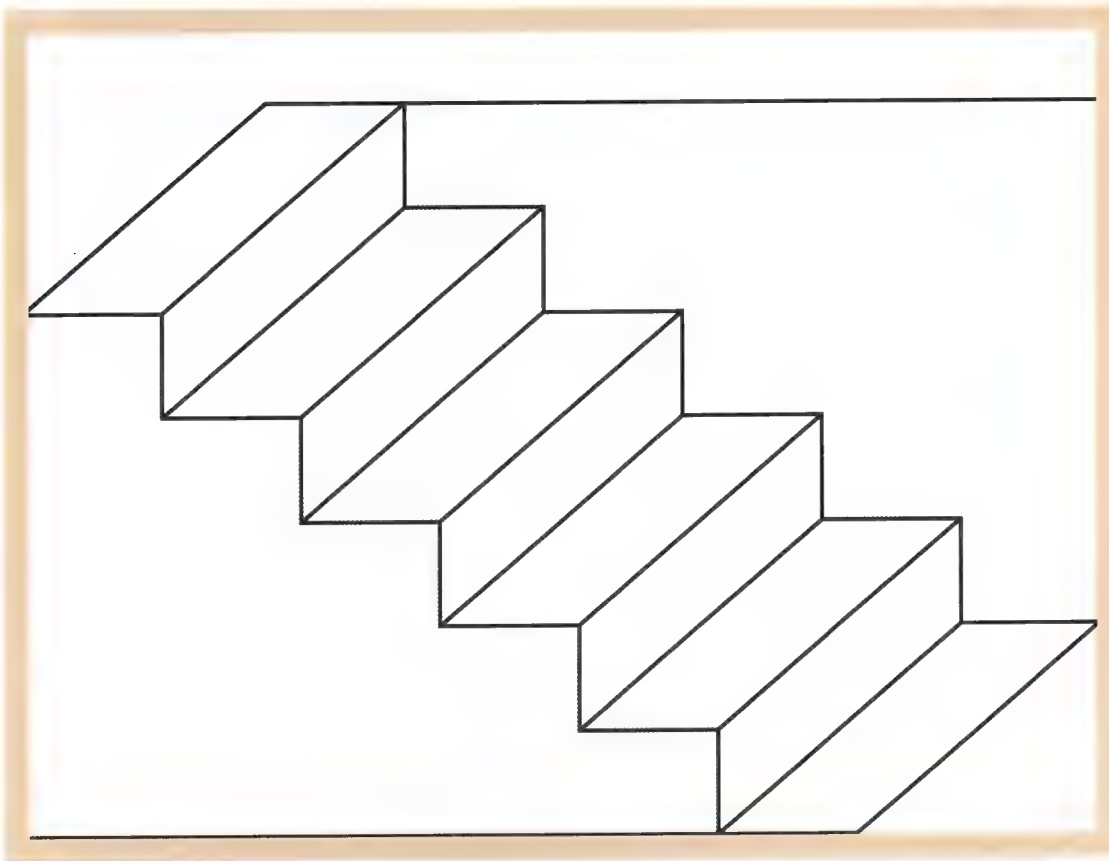
Can you perceive both the Eskimo and the Indian?

Transformation



The man transforms into a pear.

Schroeder's Staircase



Stare at this and the staircase will invert.

Lupe

This woman's career is written in her face.

The Human Condition

Is the scene on this painting on the outside or inside of the room?

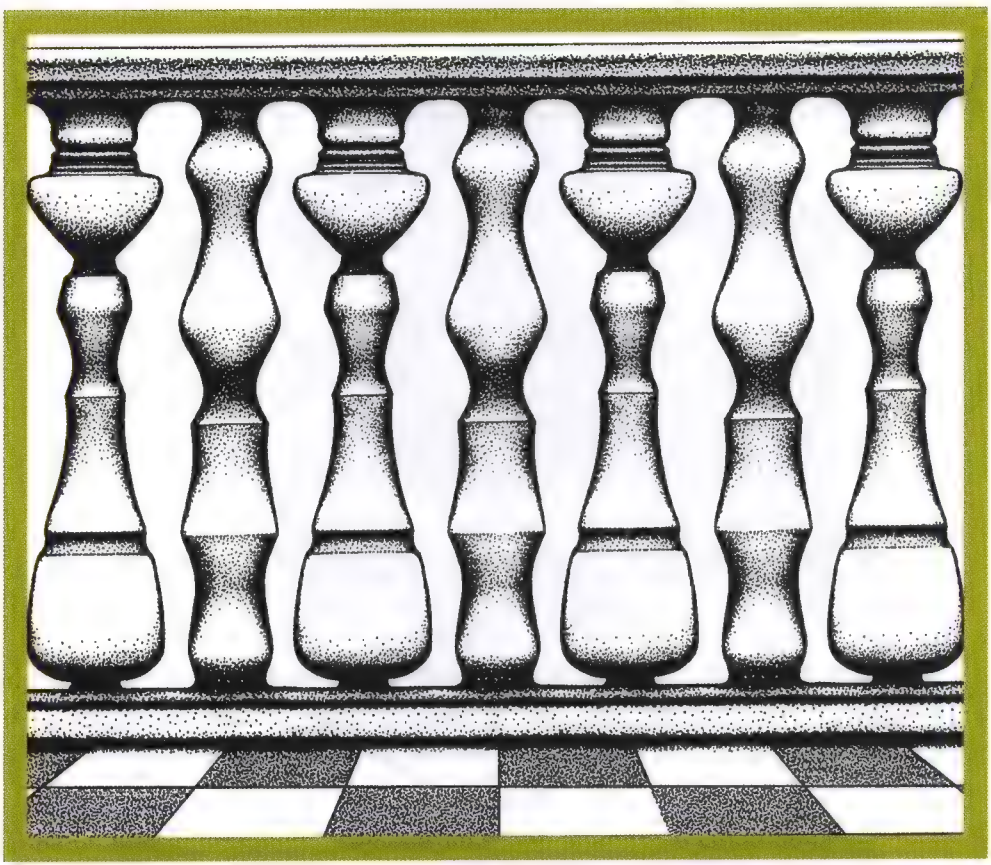
The Mysterious Lips that Appeared on the Back of My Nurse

Can you find the face?

Hide-and-Seek

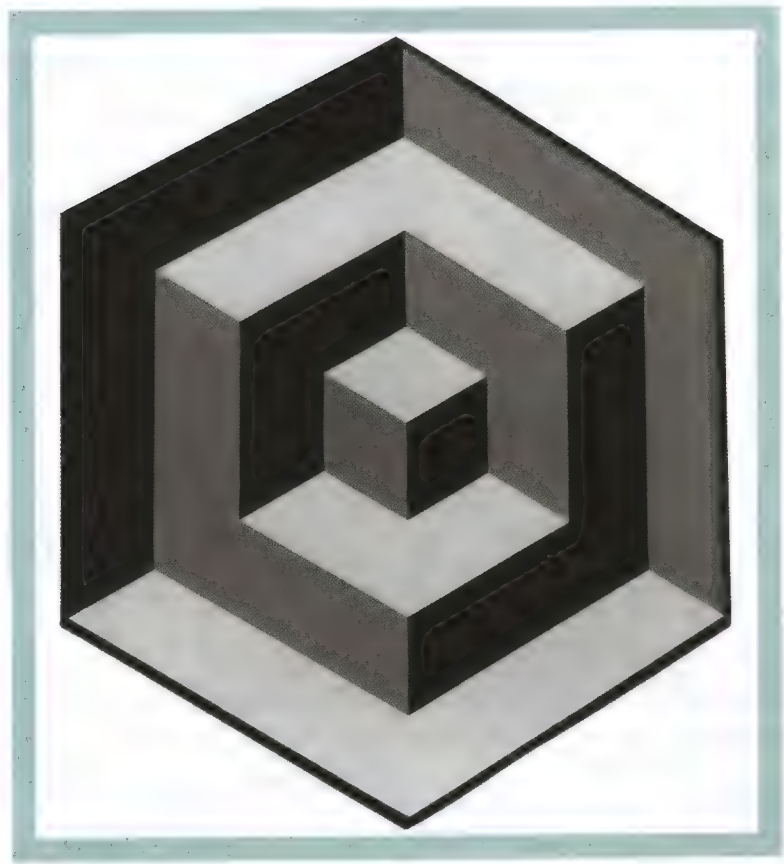
This man is cleverly hiding. Can you find him?

Beckoning Balasters



Can you find where the figures are hiding?

Reversing Cube



This cube will reverse in depth when you stare at it.

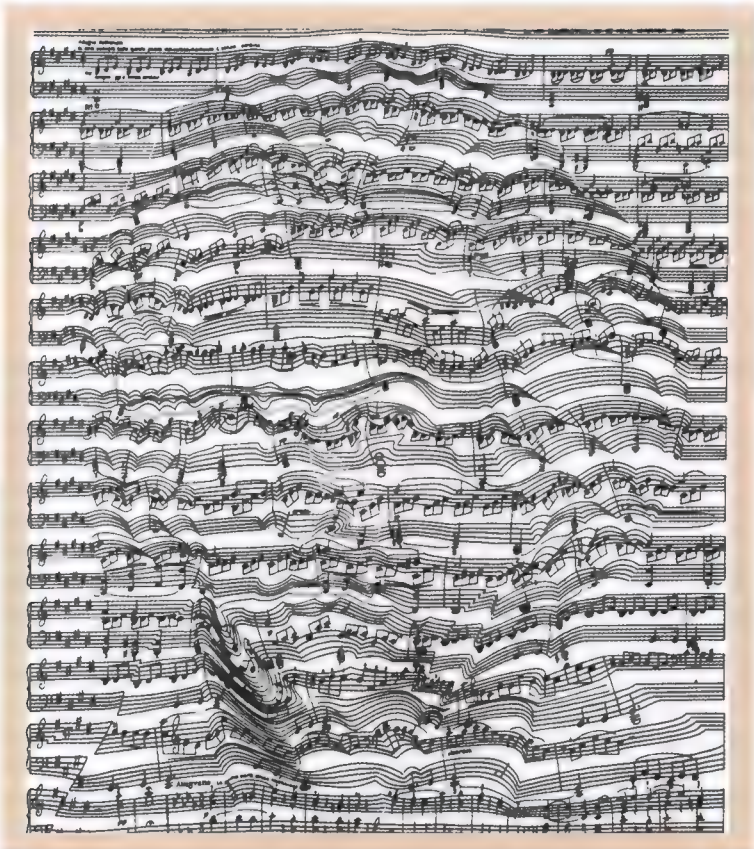
Visions of Don Quixote

How many hidden faces can you find?

Man of the Mountain

Can you find the man of the mountain?

Beethoven and the Moonlight Sonata



A noteworthy portrait of Beethoven.

Forever

Can you find the vase, the elderly couple, and the two musicians?

Landry's Horses and Clowns

Can you see both the horses and the clowns?

Where is Santa Hiding?

Santa is very clever at hiding. Can you find him?

Figure/Ground Illusion

Can you see both the arrows and the running figures?

Cats, Frogs, and Dragonflies

Can you find the cats, frogs, and dragonflies?

Ascent

Can you find the large face of Jesus?

Kissers

Do you see one head or two people kissing?

Lilies

Can you see both the woman and a vase of lilies?

Hidden Message

HOE LEAN ONE

ACE LIE TOUGH AND

EASE CHEST TUCK HID DEBT TART

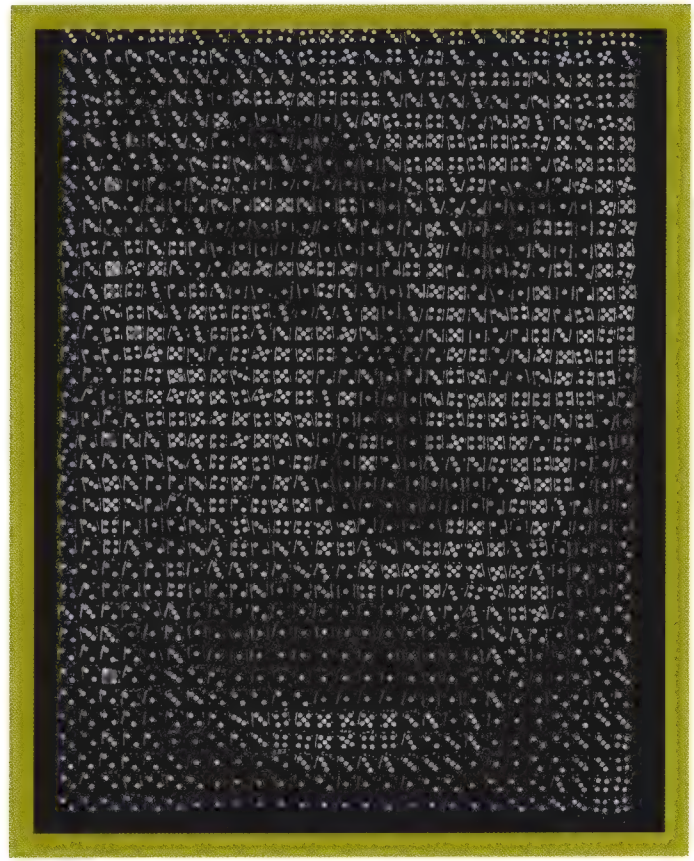
ALE HEIGHTS WHICH

What does this say? Try reading each line alone quickly.

Nomad

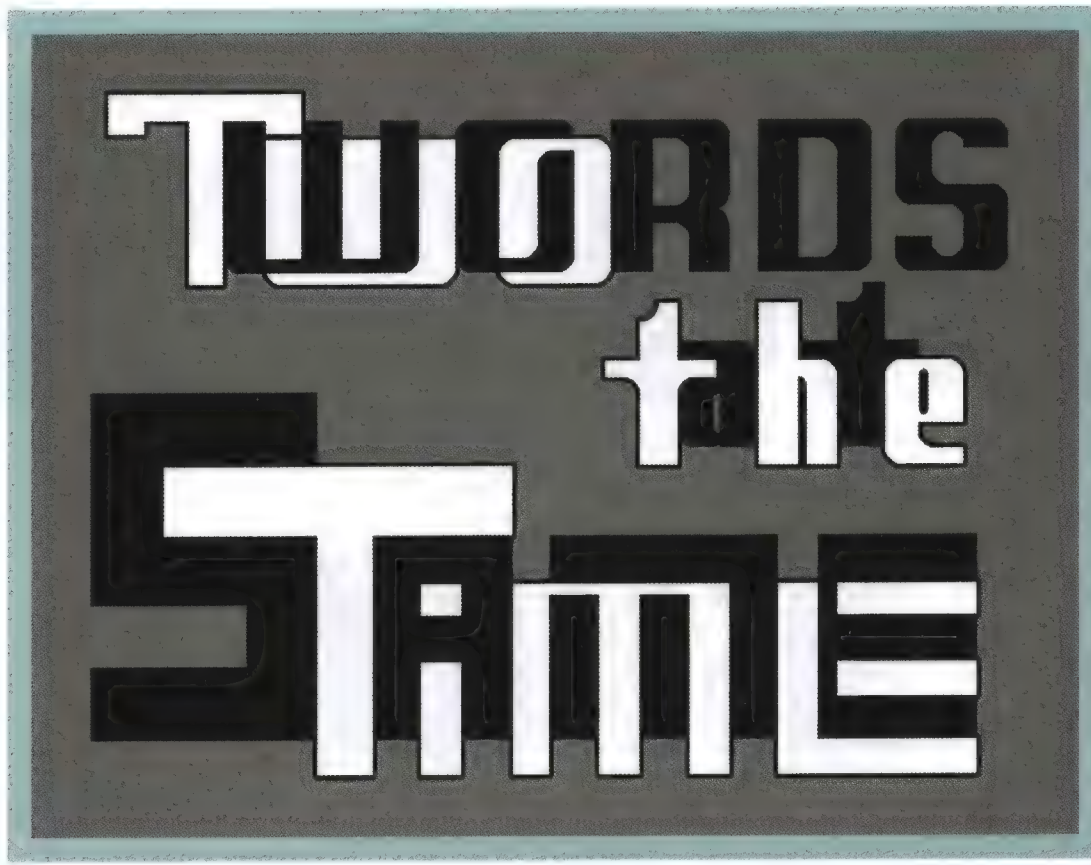
The man becomes one with his Ox.

"God Does Not Play Dice with the Universe"



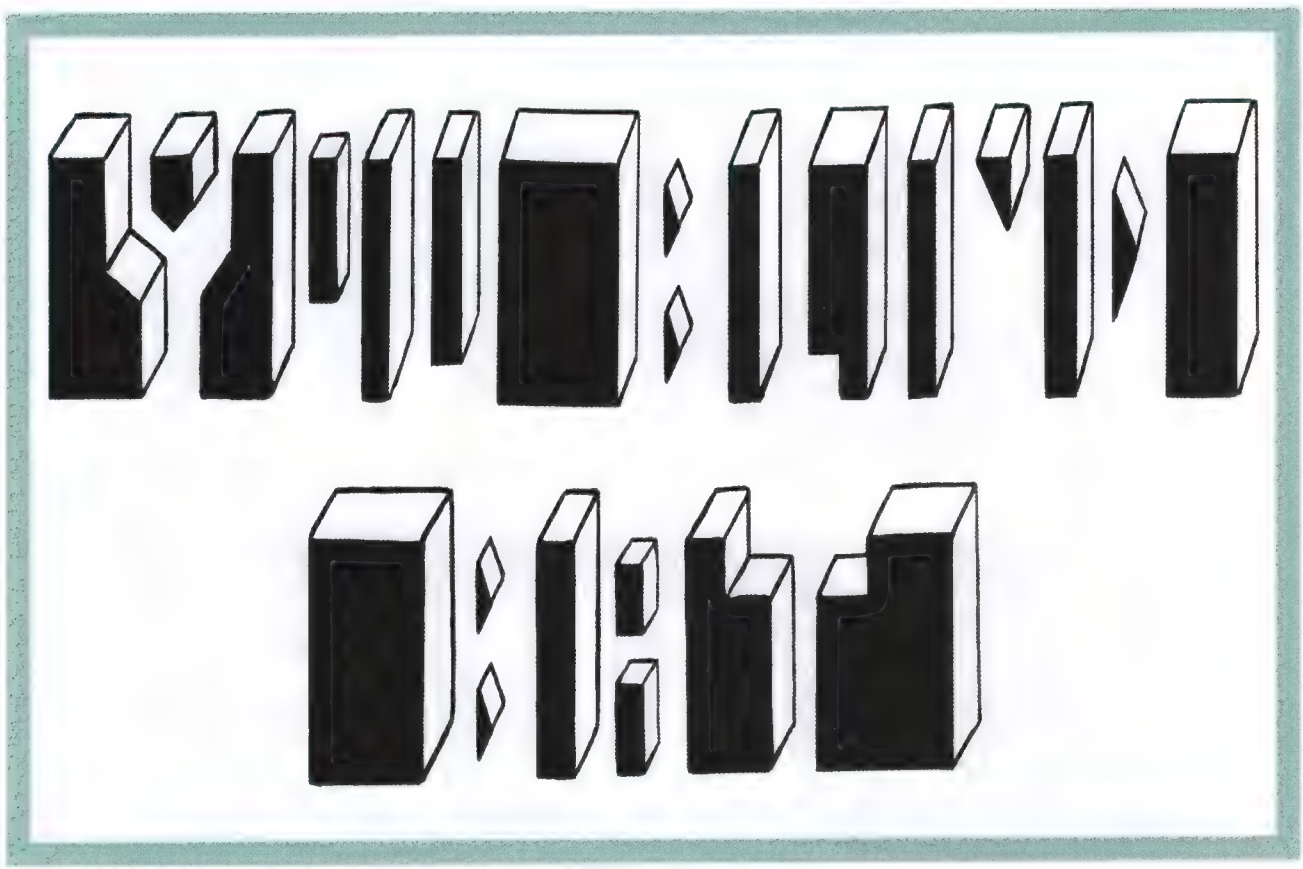
Do you see the face of Albert Einstein or a lot of dice?

Speed Reading



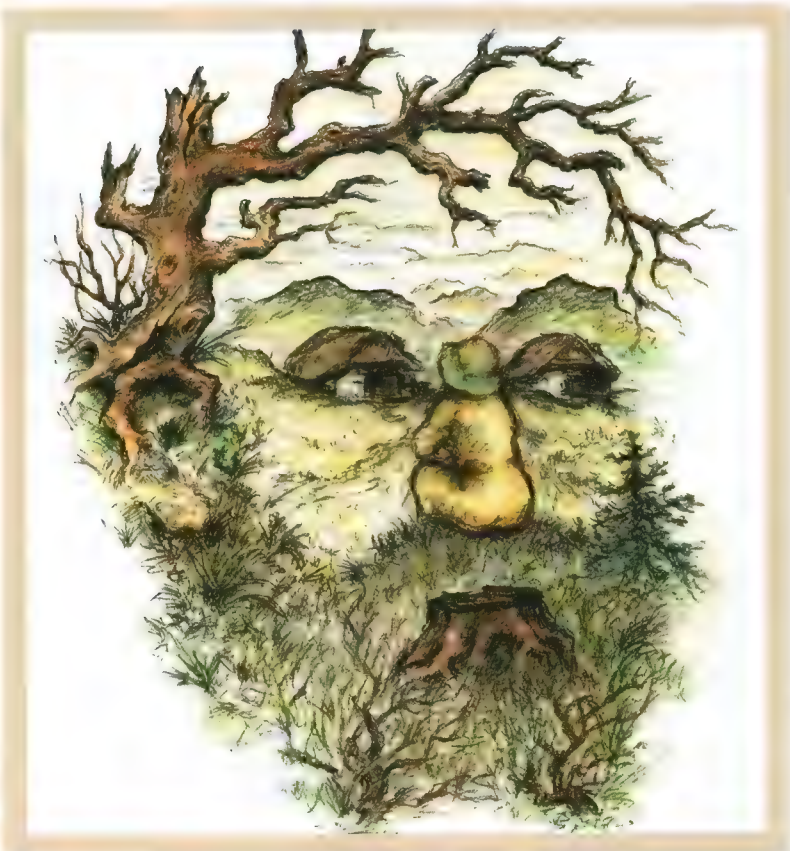
Can you read these two phrases simultaneously?

Vision Test



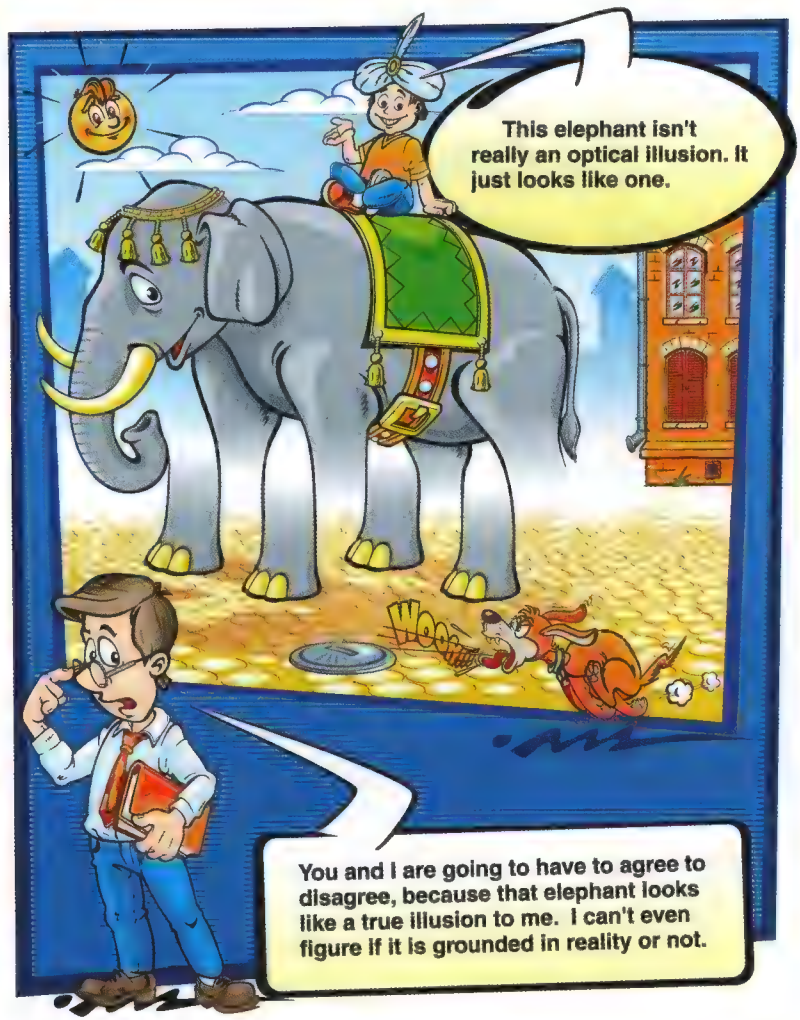
This is a vision test to see if you have developed any visual difficulties from reading this book. Try reading it close up. If this does not work, try reading it from a distance.

Spirit of the Mountain

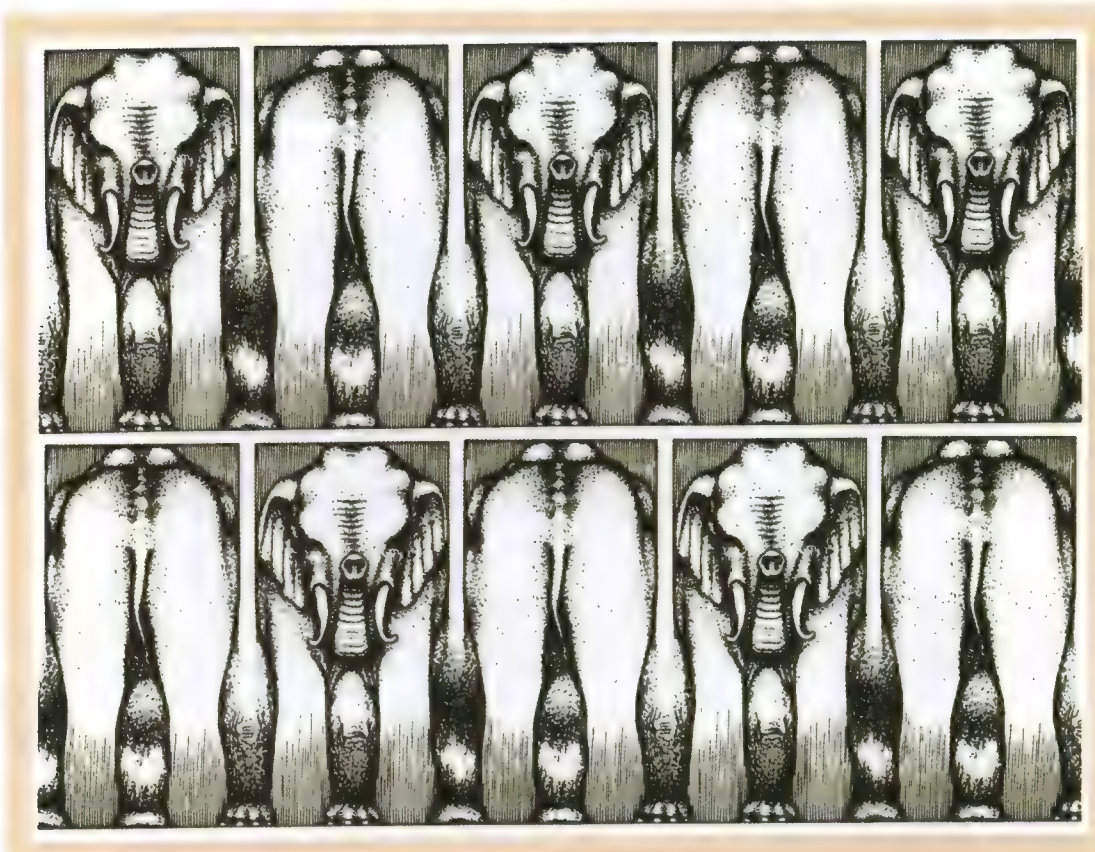


Can you find the spirit of the mountain?

L'Egistential Elephant



Impossible Elephant Stable

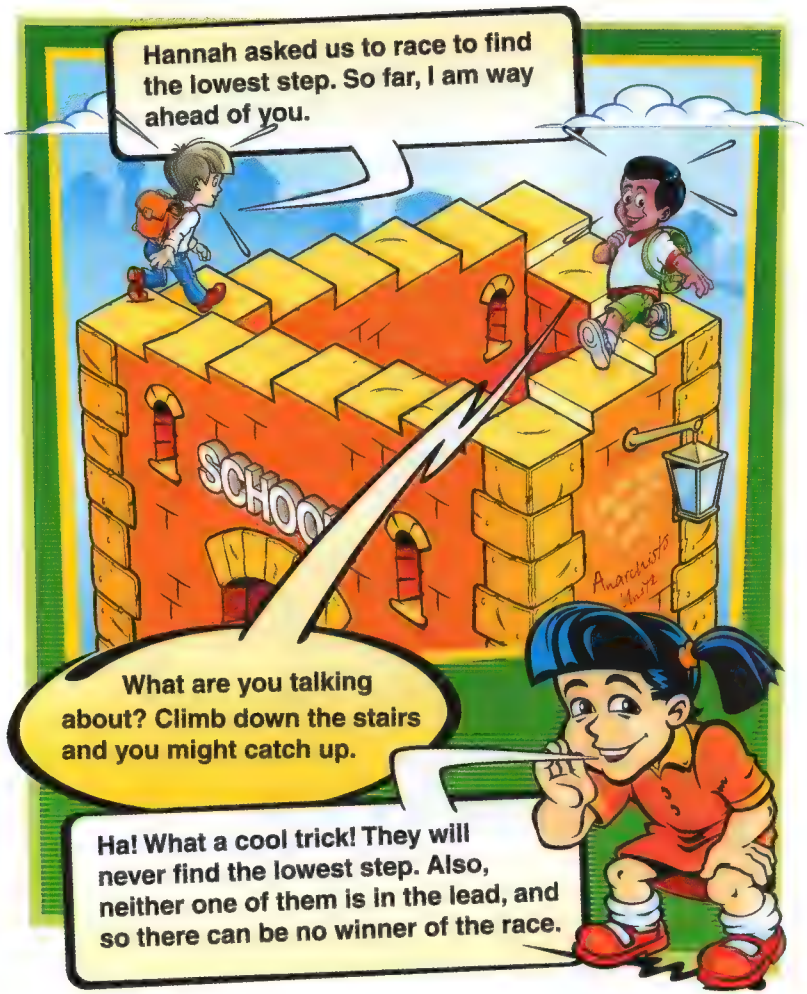


This is what you would see if you saw a stable of impossible elephants.

The Impossible Terrace

Are you seeing this balcony from above or below?
Also, the ladder seems to twist in a strange way.

An Impossible Staircase



Window Gazing

In this strange window, you can look out in two different directions simultaneously.

Melancholy Tunes on a Flemish Winter's Day

How does the left column come forward?

An Impossible Configuration

Is this configuration of cubes possible?

A Birdcage of the Fourth Dimension

There is something peculiar about this birdcage.

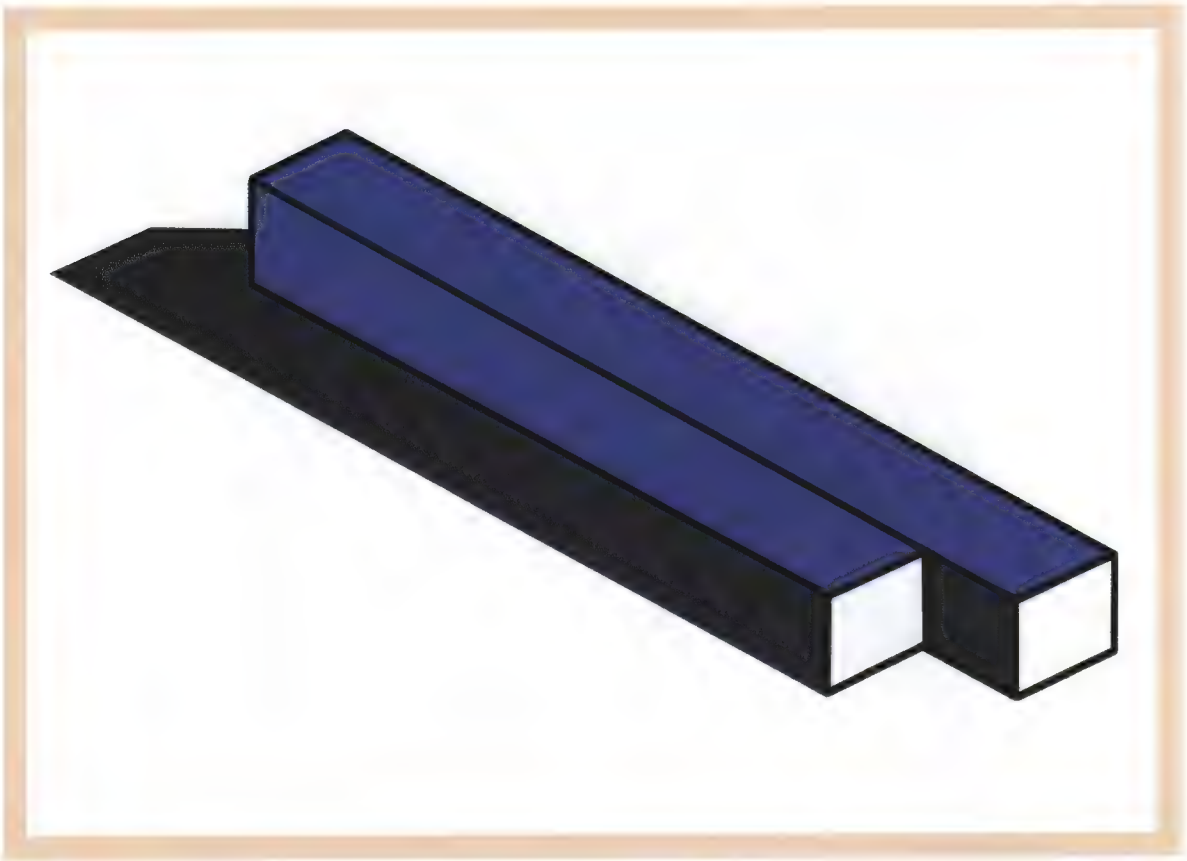
The Thiery Figure

This figure will flip-flop when you stare at it, and the middle side will be either above or below.

Between Illusion and Reality

The top section appears to be solid and the bottom section appears to be a passageway. Cover either the top or bottom part.

Shadow Play



There is something strange about the block's relationship to its shadow.

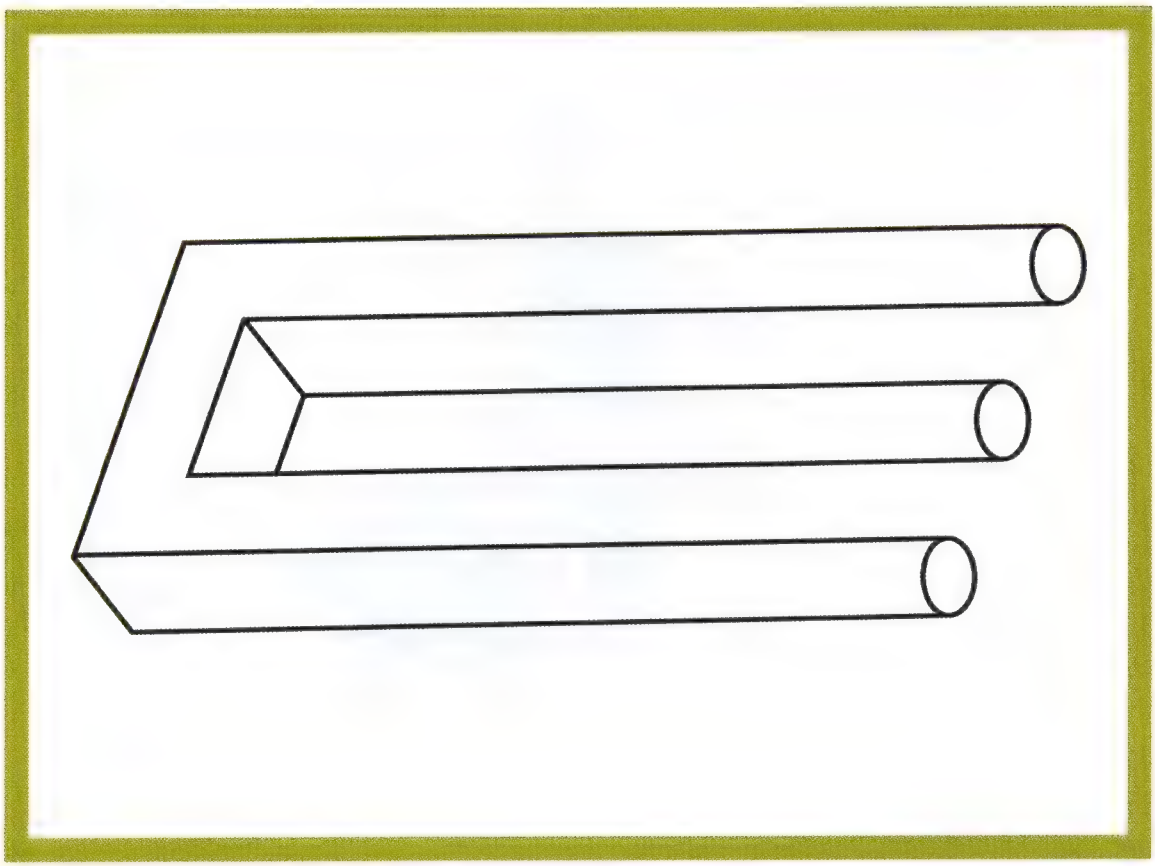
Reflections of an Impossible Triangle

In front of the mirror you can see an impossible triangle. The reflection reveals how it is made.

Nob's Impossible Ledge

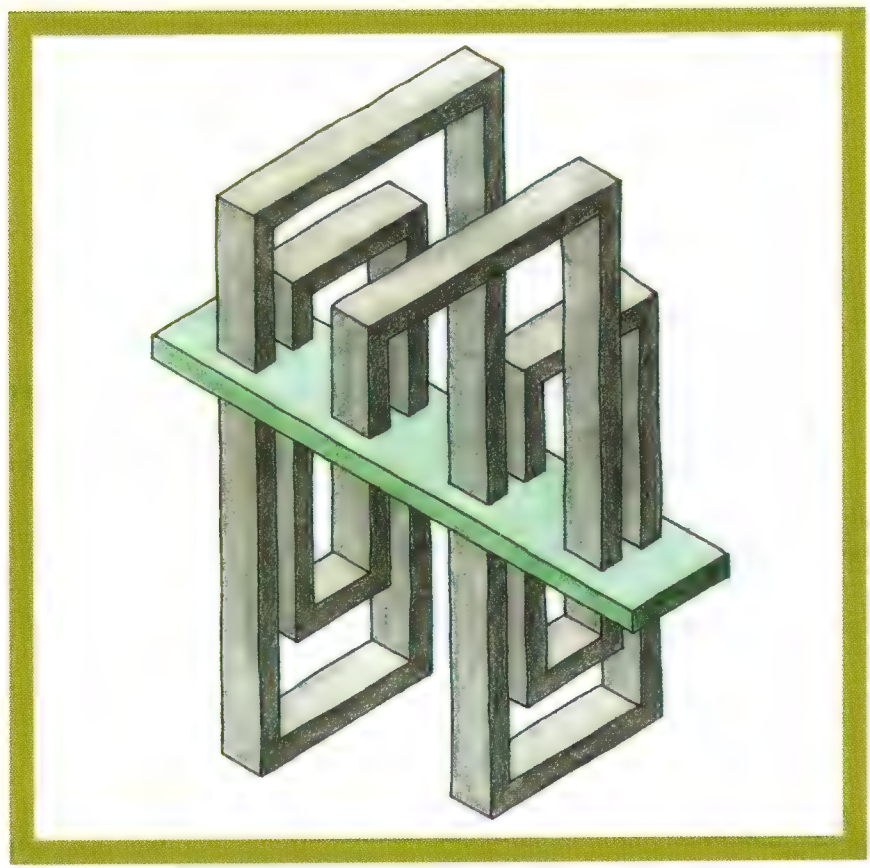
The little male figure on the right sits on top of a ledge, but if you follow the ledge to the left, the female figure sits in an indentation.

The Impossible Fork



What is wrong with this figure? How many prongs can you count? What happens to the depth of the middle prong? Cover either side of the figure, and each side will appear perfectly possible, but when you uncover the two sides, it appears impossible again.

Impossible Meander

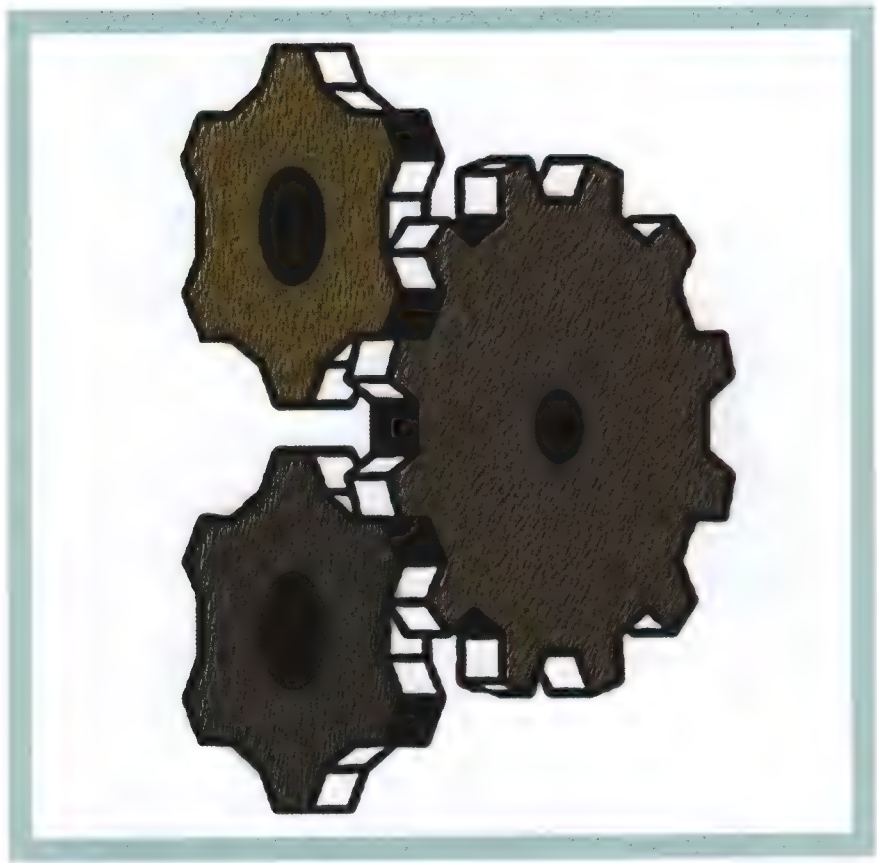


This construction is impossible. Can you see why?

Hogarth's Mistakes of Perspective

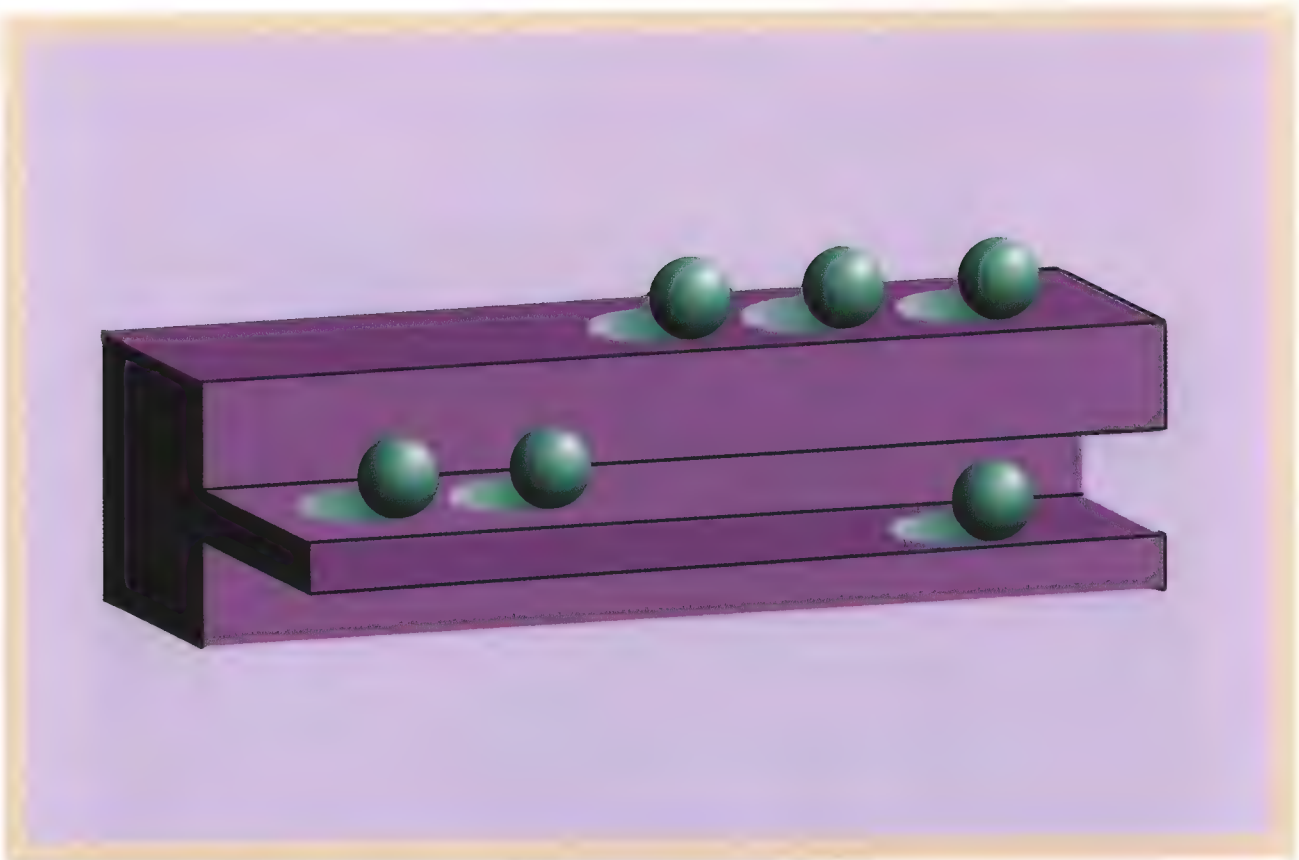
How many perspective mistakes can you find in this picture?

A Mesh of Gears



Can these gears really turn?

An Impossible Shelf

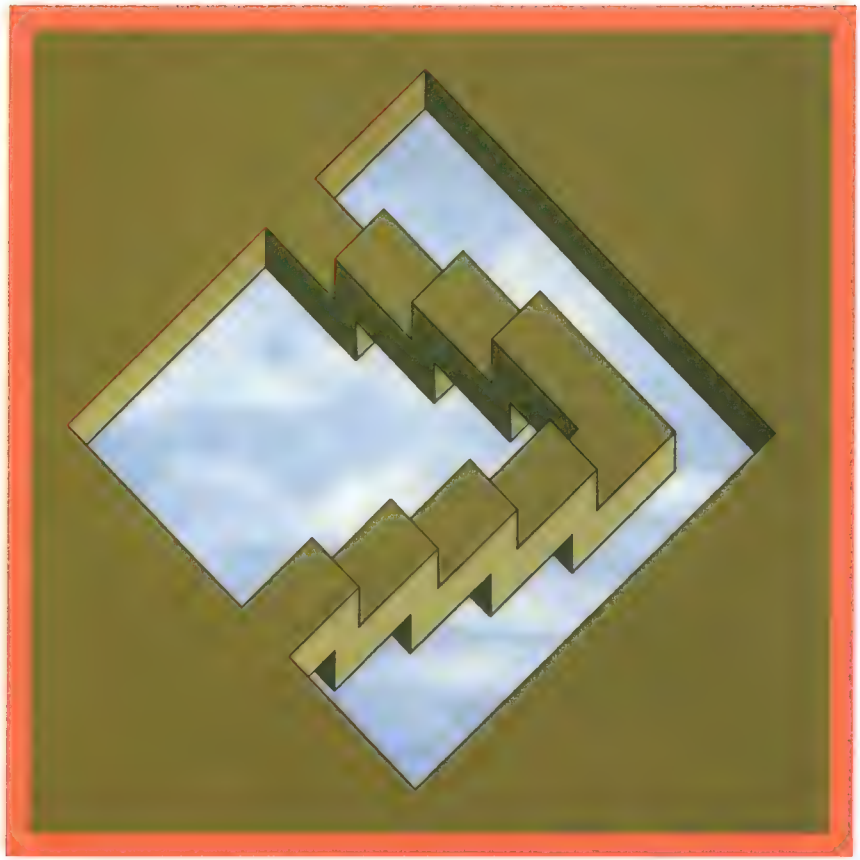


What is wrong with this shelf?

Solids Passing through Solids

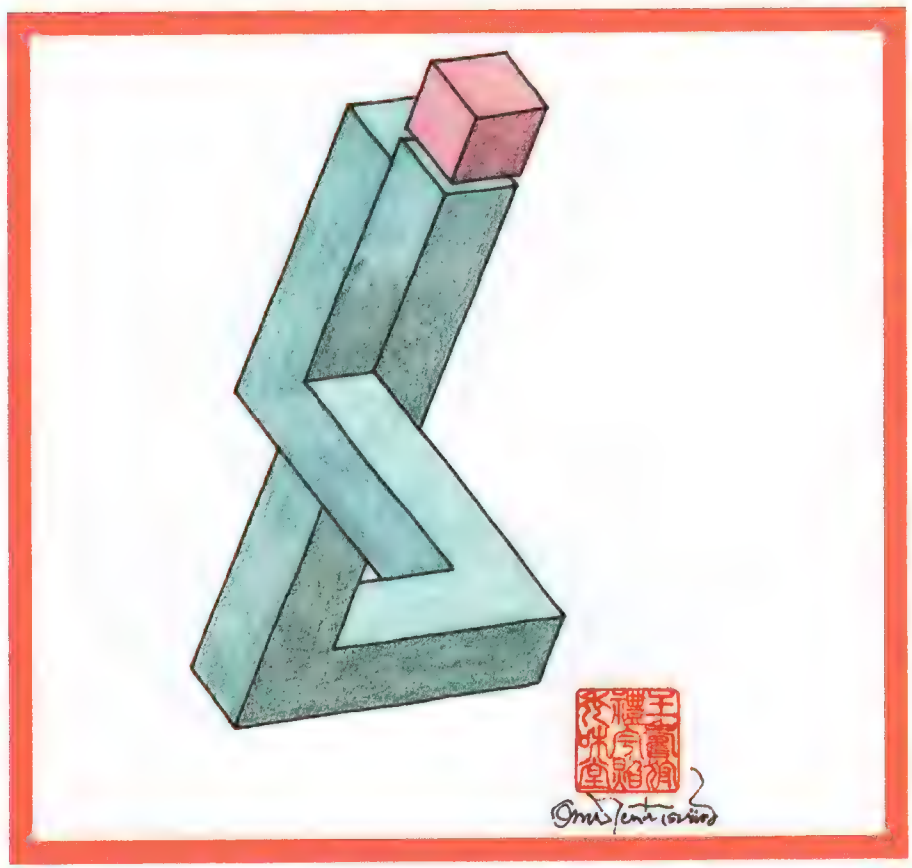
How can a solid block of wood pass through the other two blocks in this way?

Level, but Rising



Each step of this staircase is level with each other step, which is impossible.

An Impossible Triangle with a Strange Twist



Notice how the figure connects with itself.

Incident on a Railway Bridge

Are these trains going to collide?

An Impossible Meander

This meander is impossible.

Cosmic Wheels

The three rings twist in an impossible way.

Perigrinations

There are a lot of impossible stairways here.

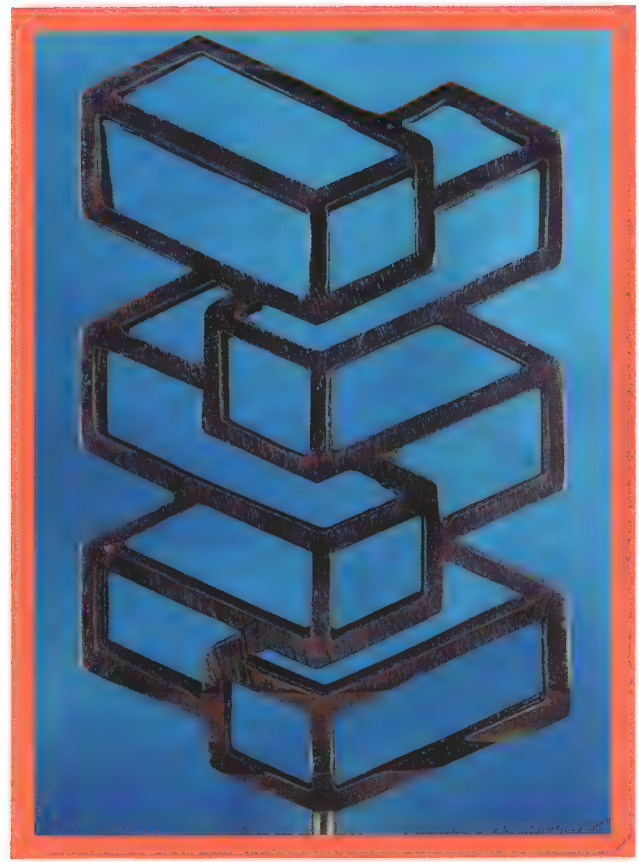
Pergola

Is this possible?

Not a Knot

This knot may not be possible.

Moretti's Impossible Blocks



This sculpture has impossible blocks.

Penrose's Strange Stairway

If you start climbing this staircase from a vertical position, when you arrive back at the starting point, you will arrive in a horizontal position.

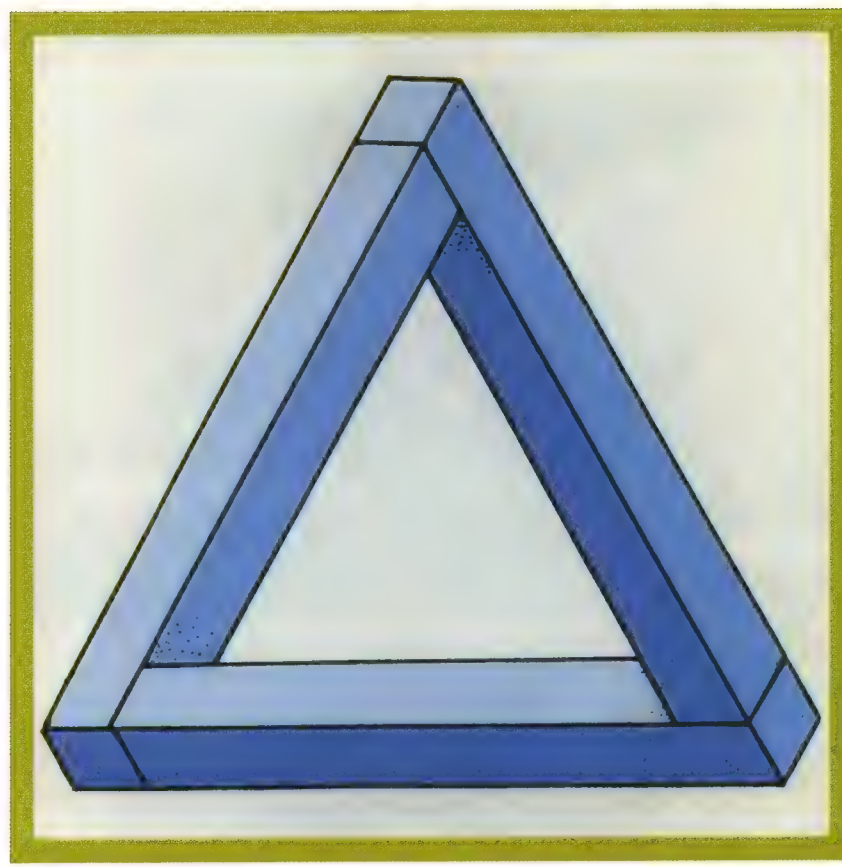
Soldier of the Lattice Fence

Can you connect these beams in this fashion.

Sidewinder

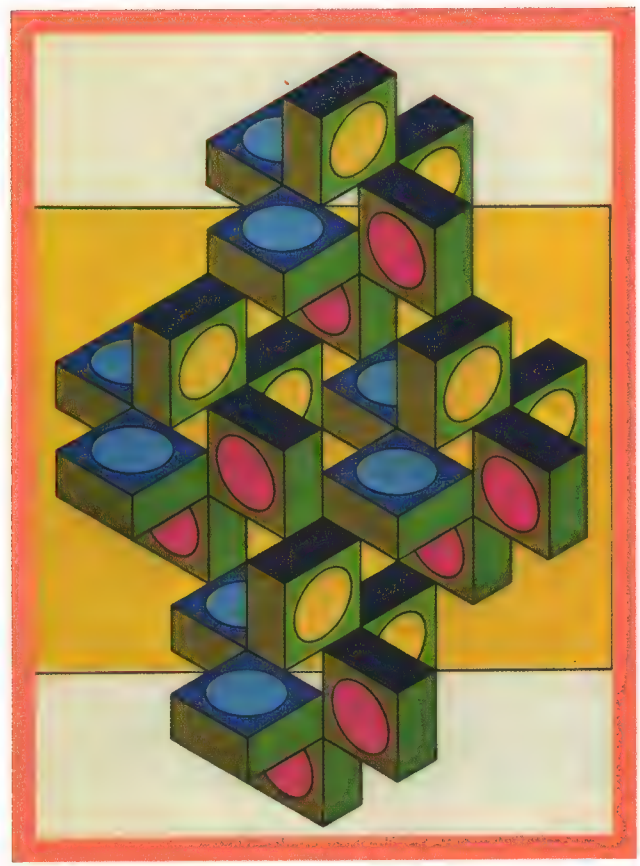
The orientation of this impossible staircase will flip-flop.

The Impossible Triangle



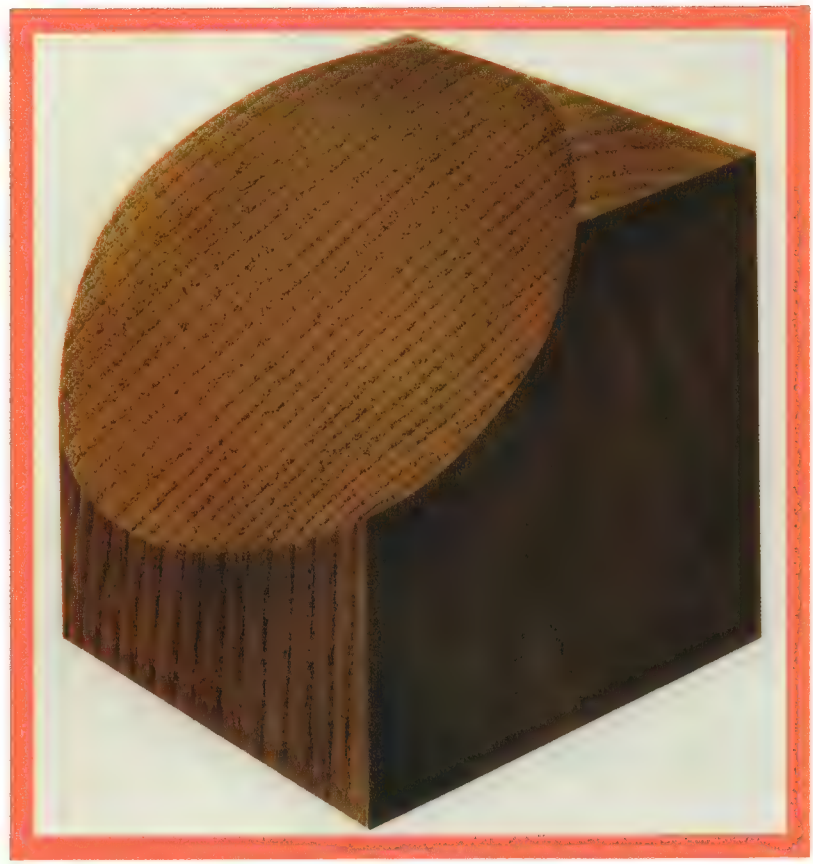
This is probably the most famous impossible figure, which is known as an impossible triangle. The arms simultaneously go away from you and toward you, yet they somehow meet. Separately cover each corner of the triangle, and see how differently your mind interprets this figure

Turner's Blocks



Can you arrange physical blocks like this?

Squaring the Circle

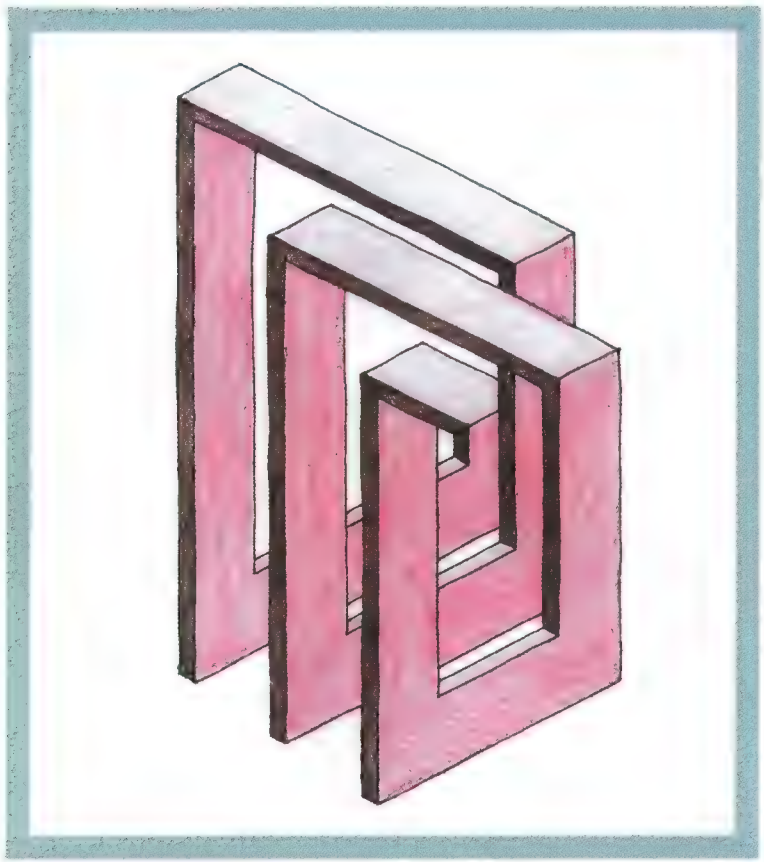


Although it looks entirely possible, it is not possible to cut a block in this fashion.

The Impossible Love of Romeo and Juliet

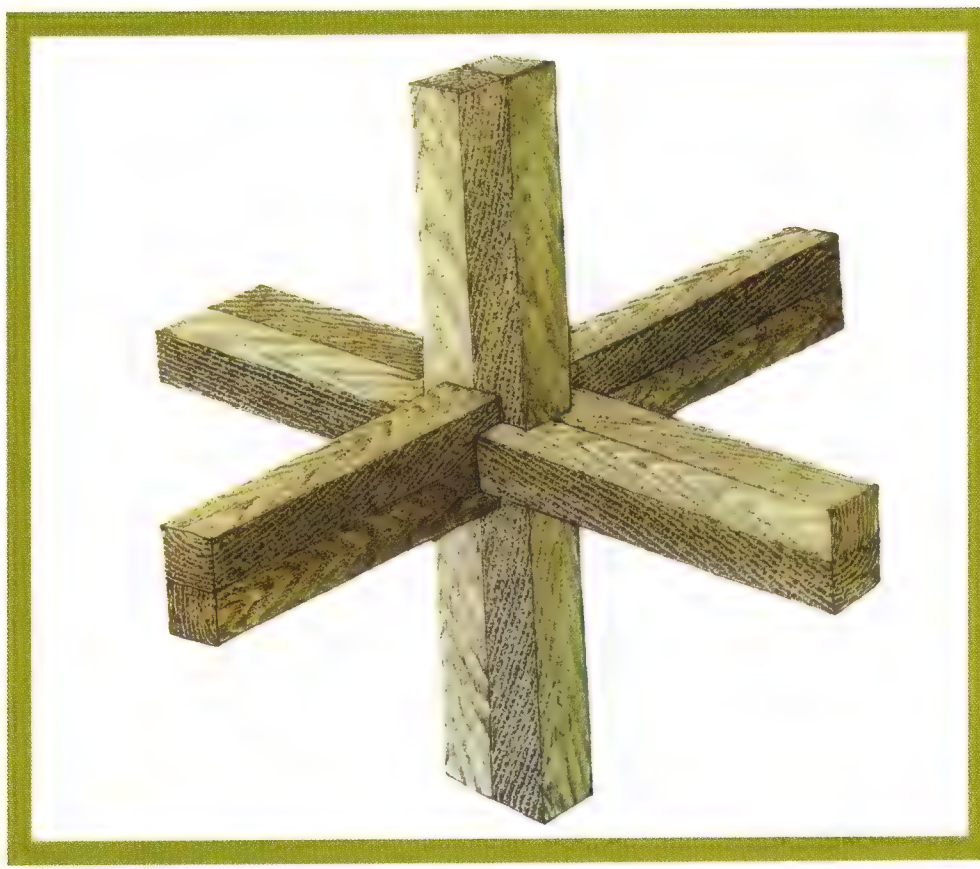
The two lovers Romeo and Juliet are connected in an impossible way.

Reutersvärd's Strange Paradox



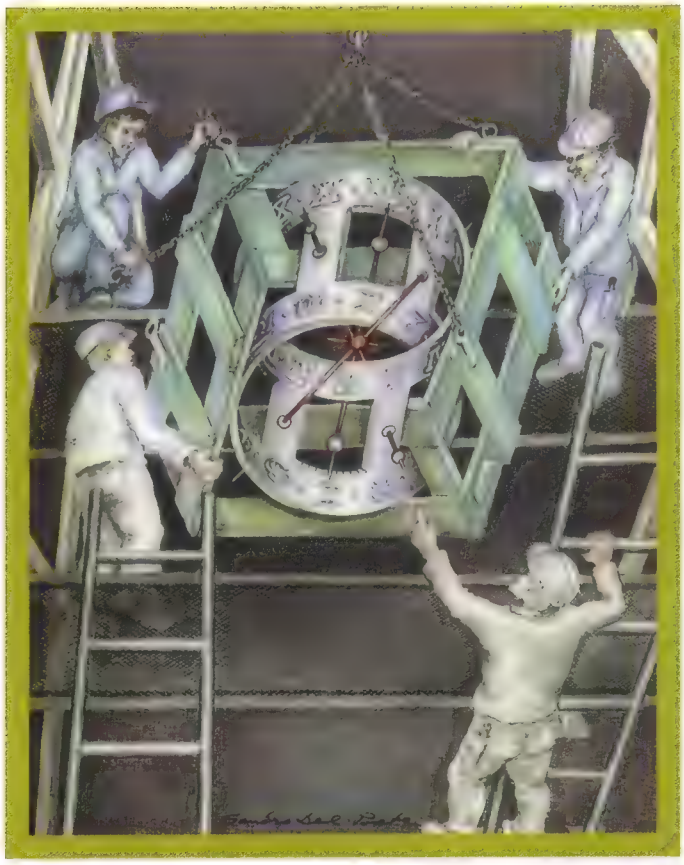
Can you find what is impossible here?

Anno's Puzzle



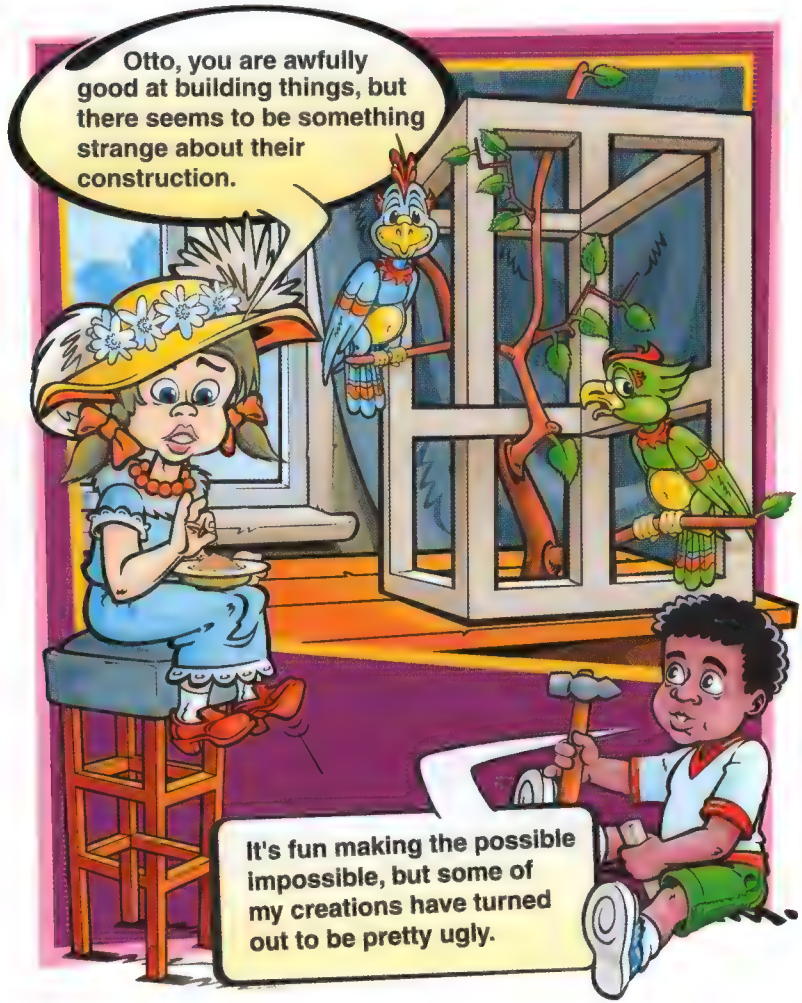
Some of the sides of this wooden block puzzle twist in a strange way.

The Astronomical Clock

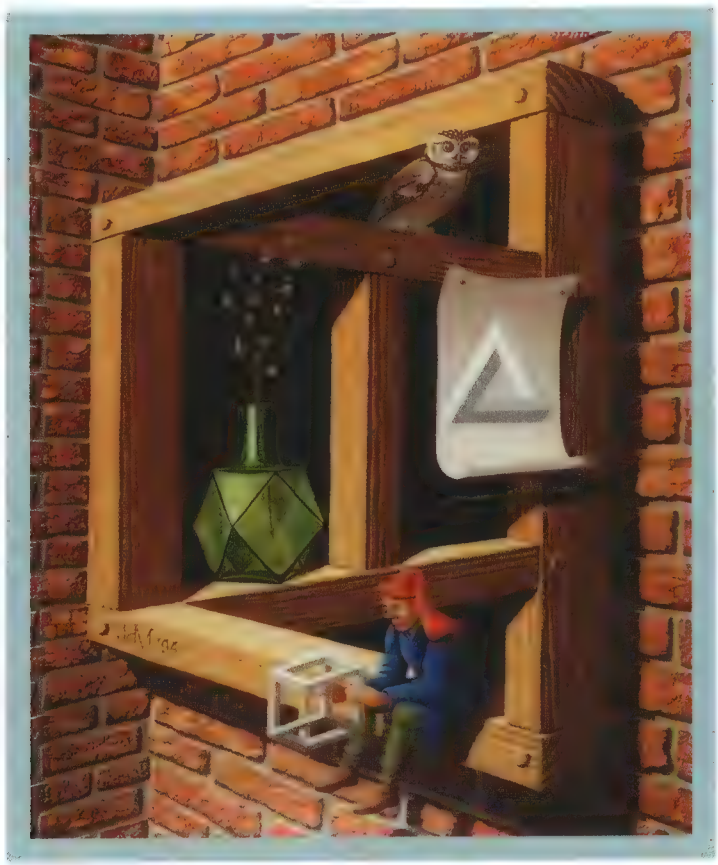


Can you find all the impossibilities here?

Contradiction in Terms



Contemplating the Fourth Dimension in a Strange Window



The sitting man in an impossible window thinks about an impossible cube.

Andrus's Box Impossible

This crate is impossible. The back beams seem to go in front of the front beams and then connect to the back beams. Try to think how this was constructed, and then see the solution on page 234.

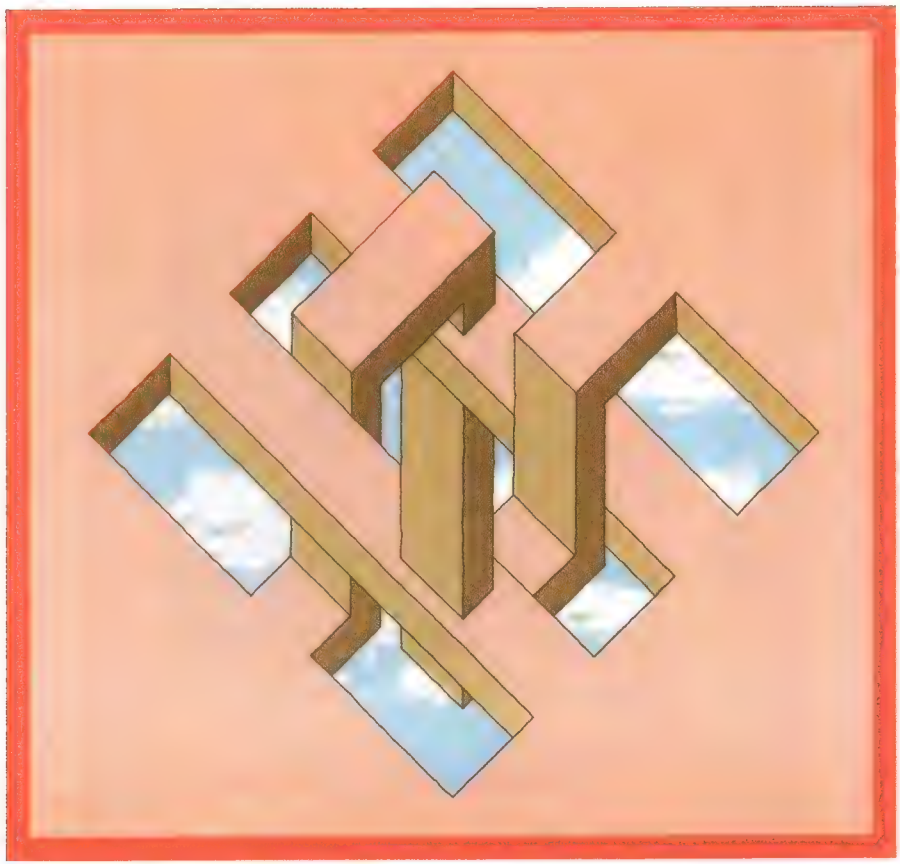
Reutersvärd's Impossible Window

How could this possibly be?

Too Many Paradoxes

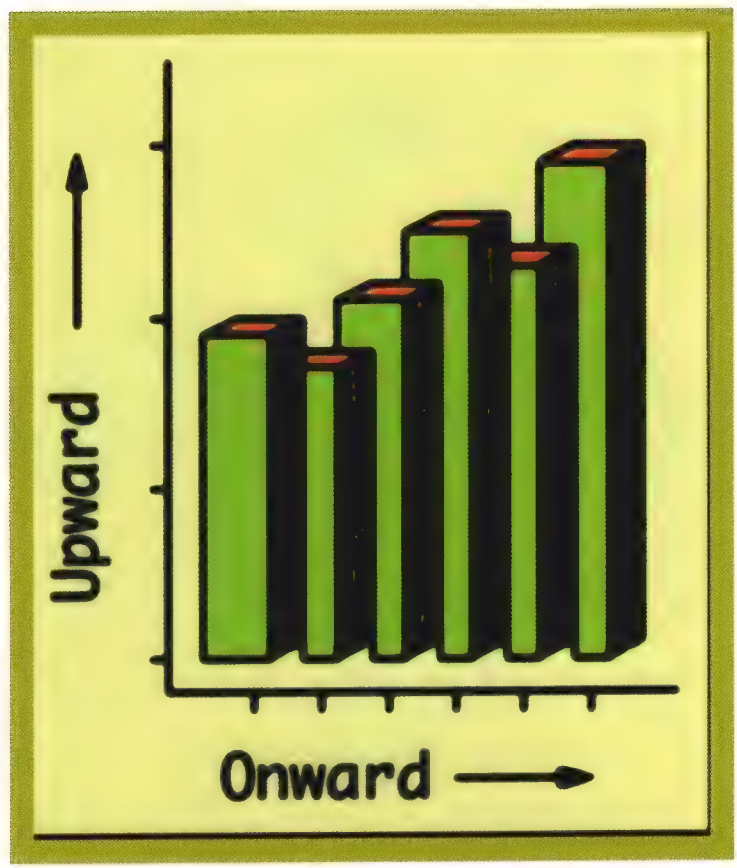
There are several impossibilities in this figure. Can you find them?

Strictly on the Level



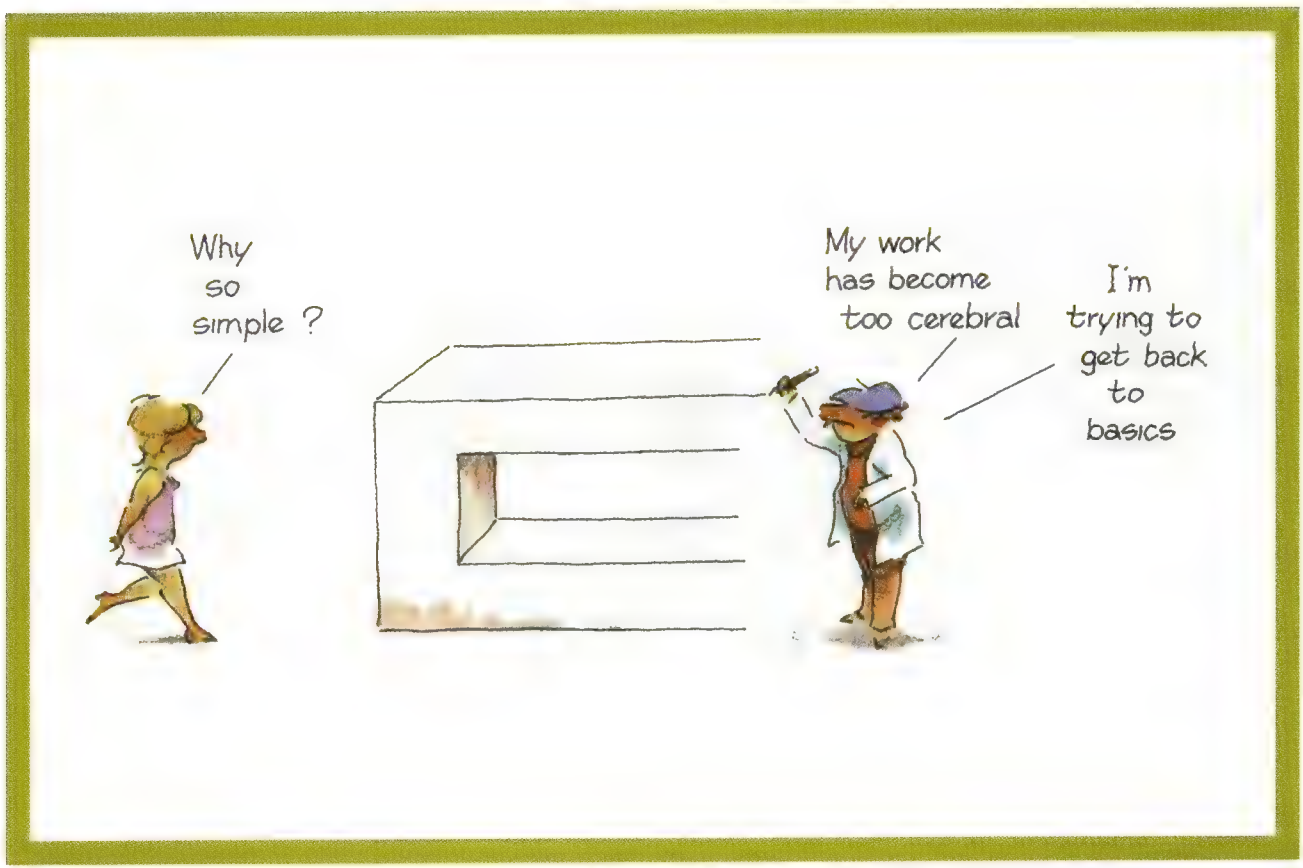
Everything seems to be at the same level, but at the same time they are not at the same level.

Graphing the Impossible



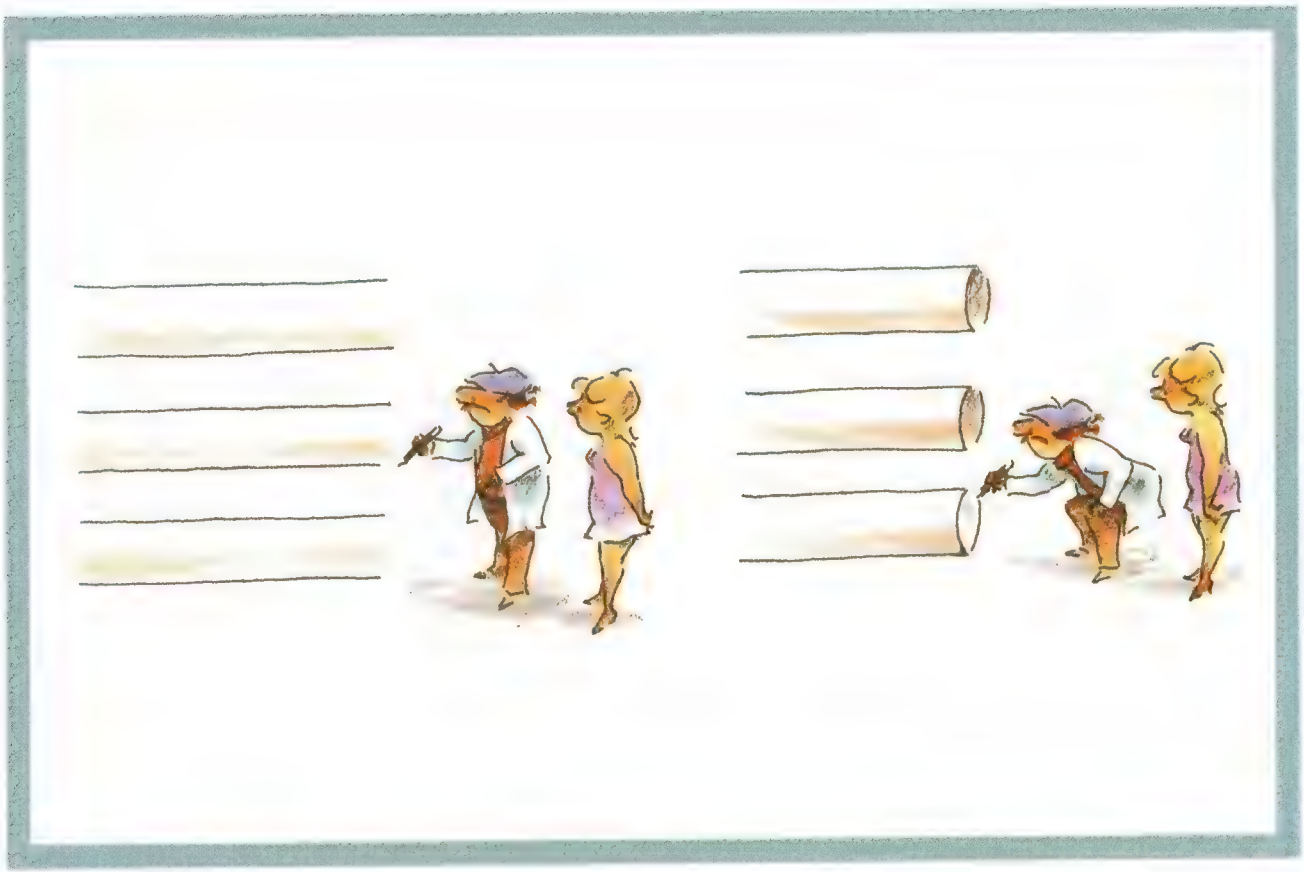
This graph is impossible.

Cartoon Panel I

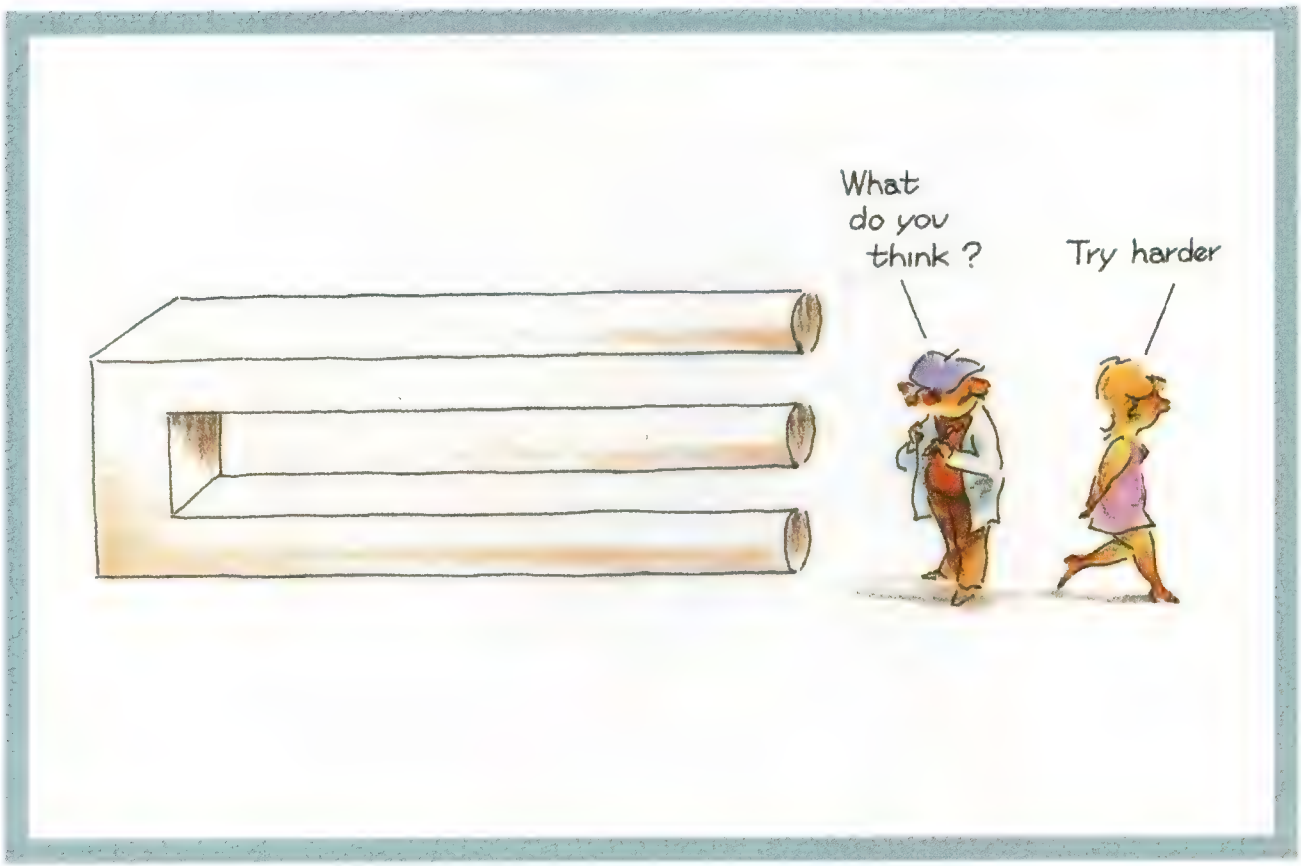


(See also the following two pages.)

Cartoon Panel II



Cartoon Panel III

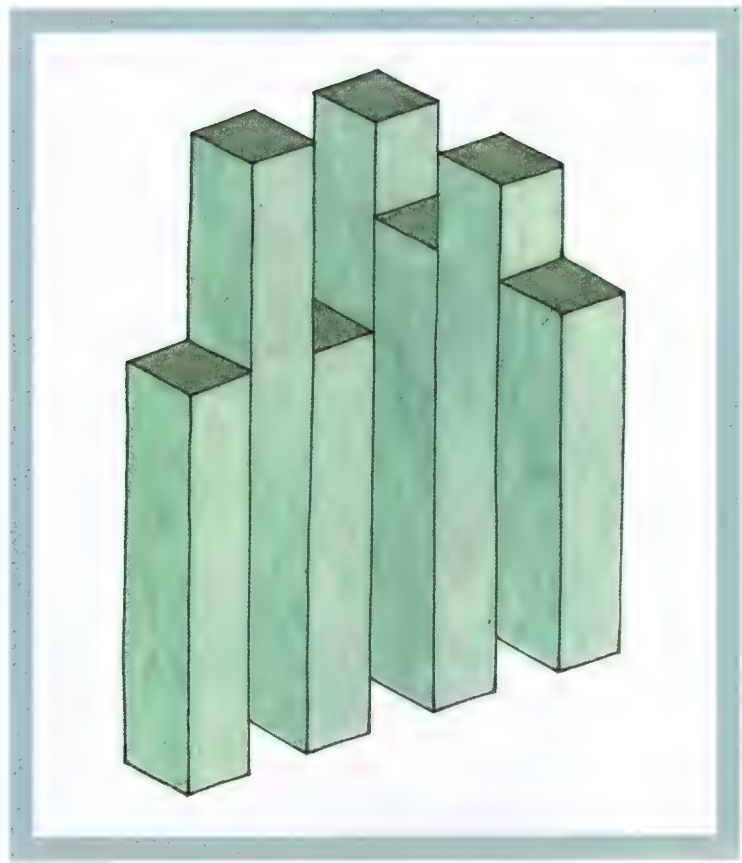


Larger Within Smaller

Celtic

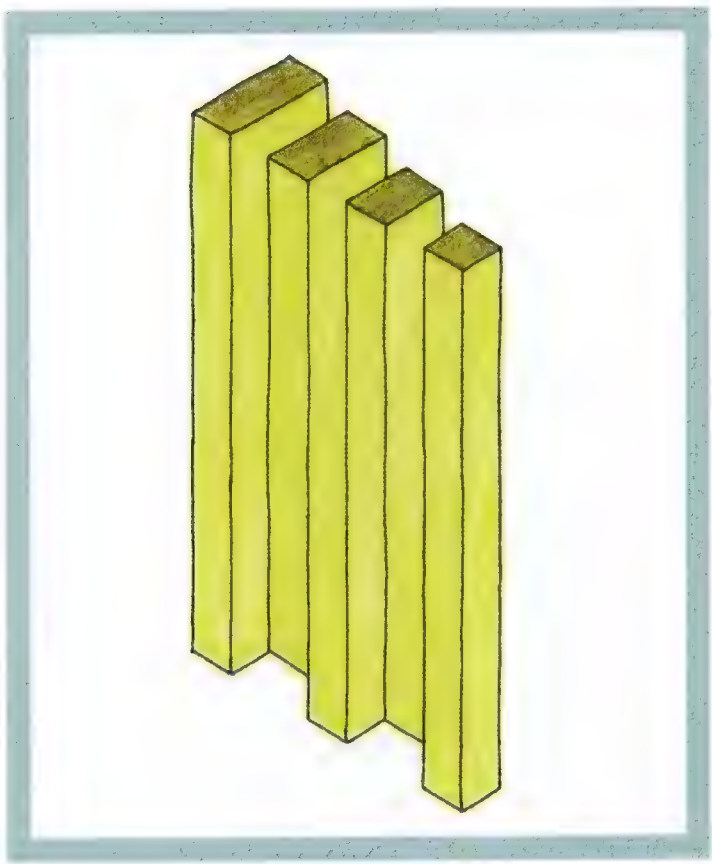
Another impossible meander.

This Isn't Adding Up



There seem to be more blocks on the top than at the bottom.

A Strange Orientation



The orientation of the blocks at the top seems to be different from the bottom.

The Garden Fence

What is wrong with this garden fence?
Try covering either side of the fence.

Belvedere

Is the top of this building connected in a funny way to the bottom of the building?

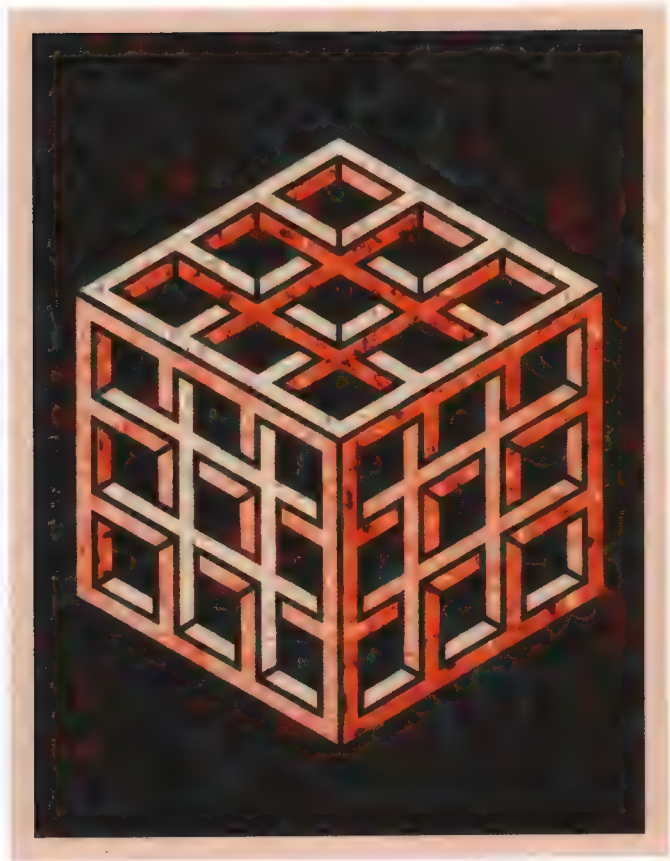
The Solution of Andrus's Box Impossible

This is the solution of the impossible crate found on page 220.

De Mey's Strange Room

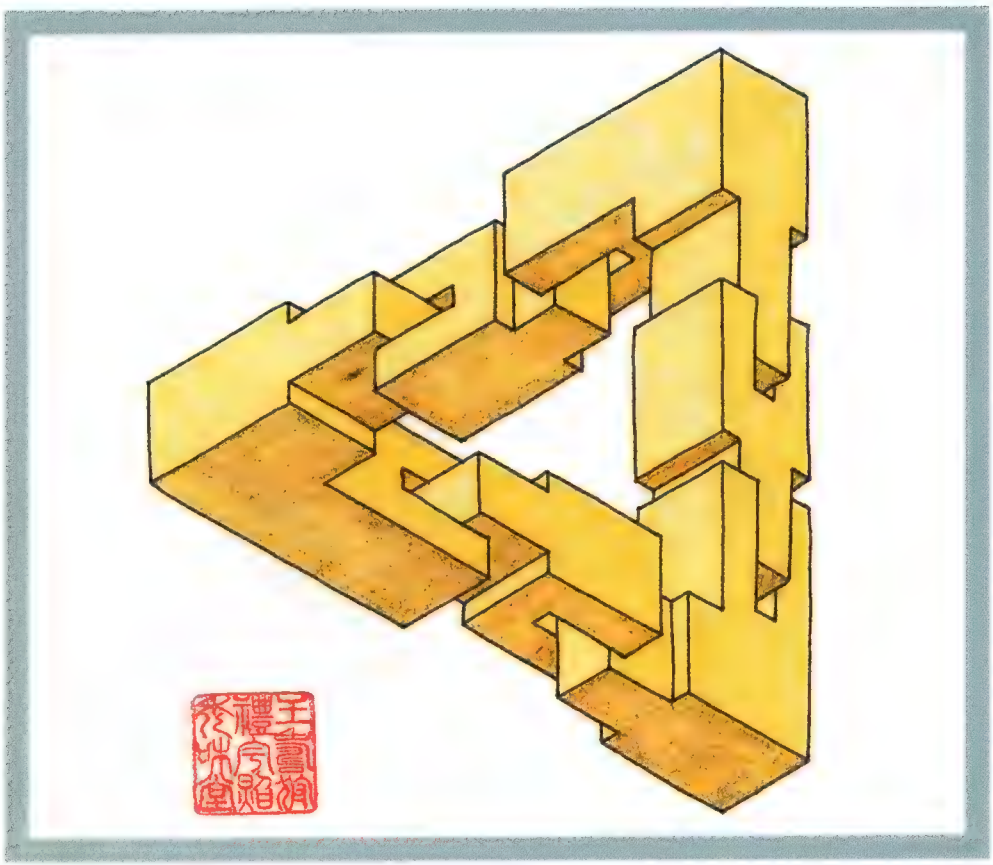
This room has a strange extension.

Rubic



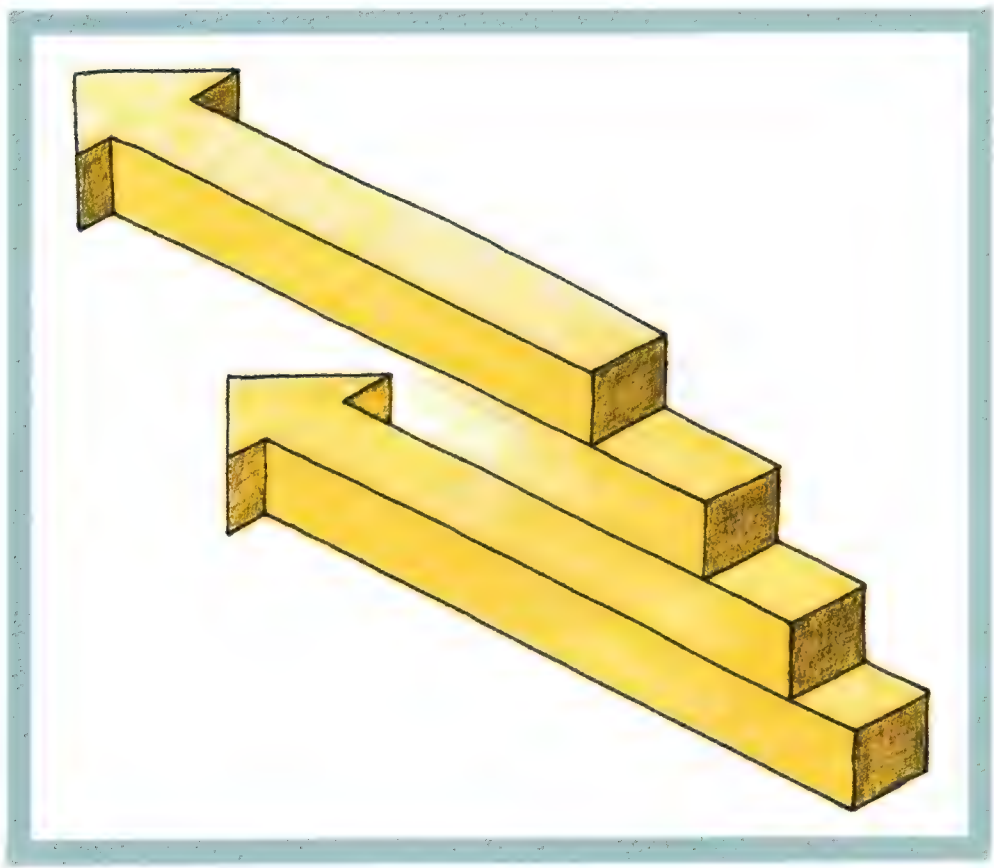
The sides of this cube seem to twist in a paradoxical way.

Two Paradoxes



Larger pieces are fitting into smaller pieces in this impossible triangle.

The Direction of a Paradox

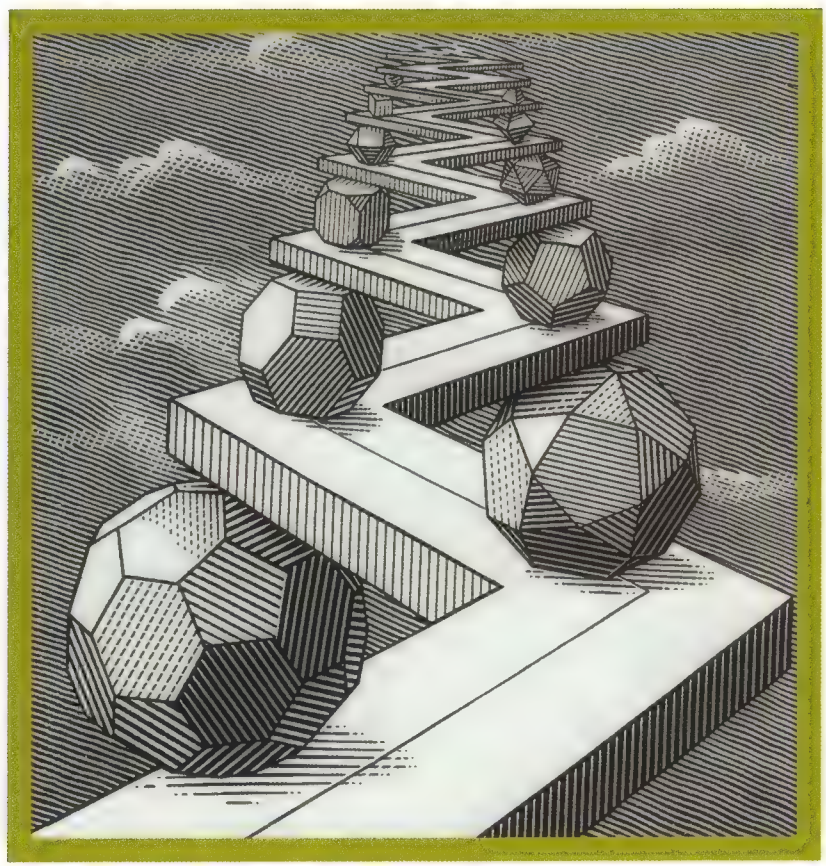


Impossible arrows.

A Building with Some Unusual Twists

There are some strange things going on with this building. Can you find them all?

Geometrical Ramp

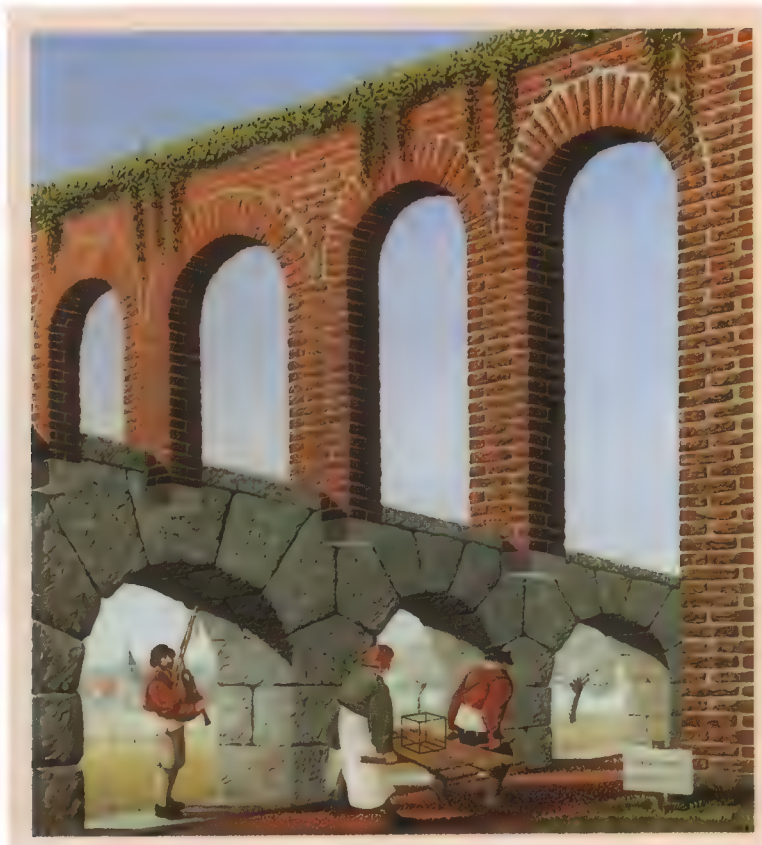


Can this ramp really exist?

Folded Chess Set

Are you seeing this chess set from the bottom or the top?

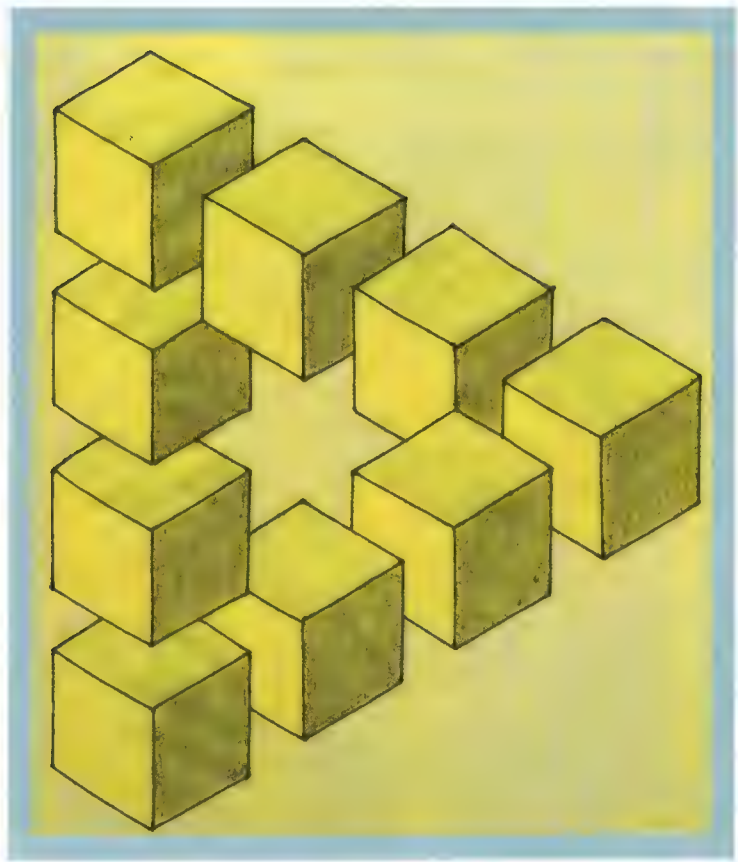
Strange Aqueduct



The top of this aqueduct connects to the bottom in an impossible way.

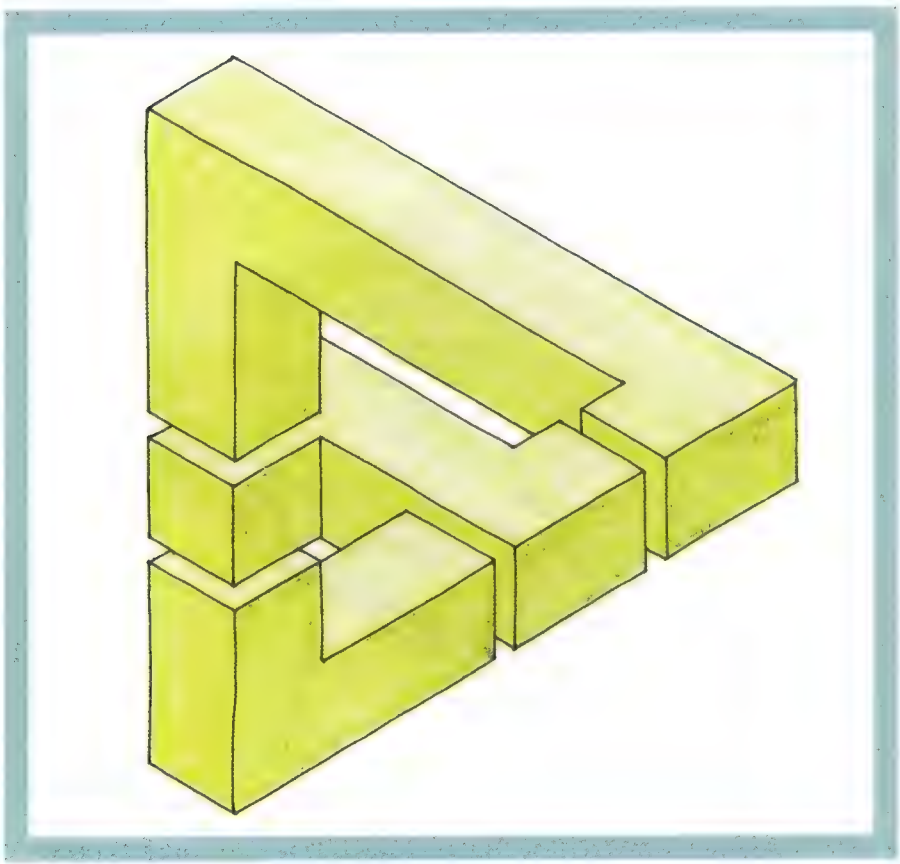
Different Perspectives

Opus 1



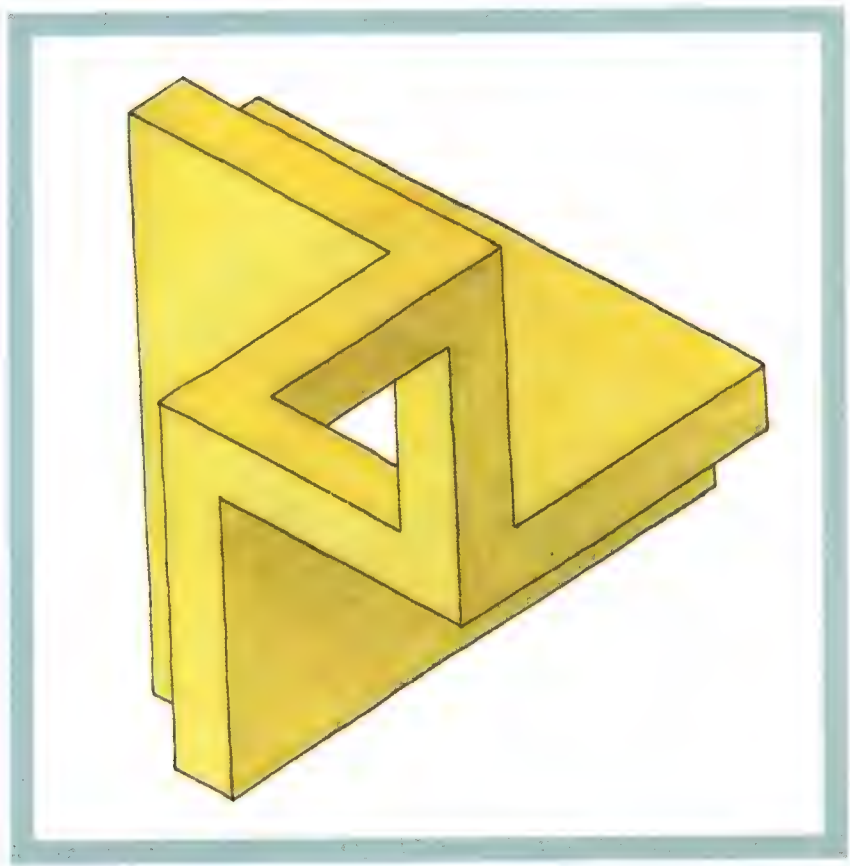
Can you really arrange a set of cubes in this fashion.

Globally Inconsistent



Each piece of this impossible triangle seems possible, but when combined, the triangle itself is quite impossible.

Extending One's Thoughts About an Impossible Triangle

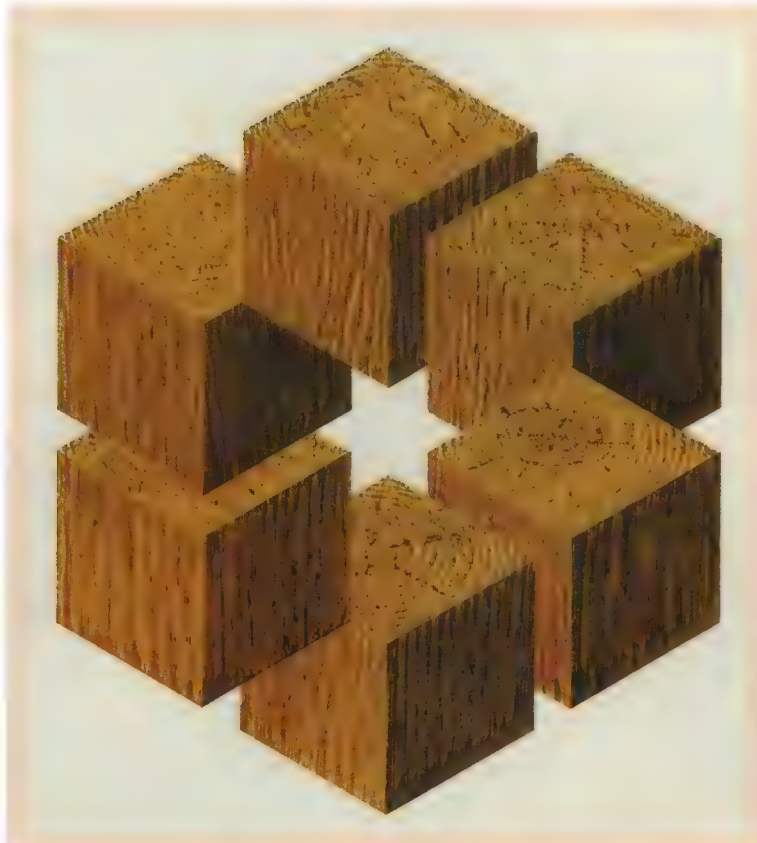


If you extend the impossible triangle, you get this type of impossible figure.

Relativity

The perspective of this drawing seems to be quite unusual. Why?

Anno's Blocks



Can you arrange wooden blocks in this way

Moretti's Impossible Ring

This is a sculpture of an impossible ring.

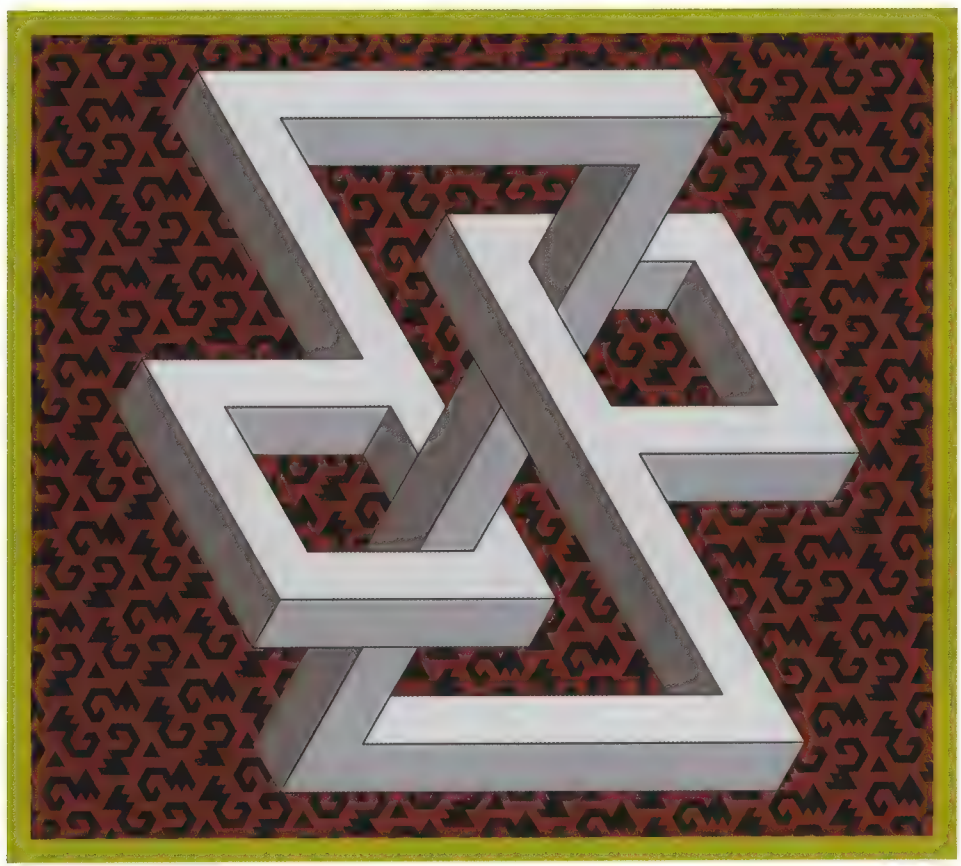
The Freemish Crate

This is another impossible crate.

Bossum's Impossible Rings

Two sets of impossible doughnuts.

Variations on a Theme by a Hungarian Artist

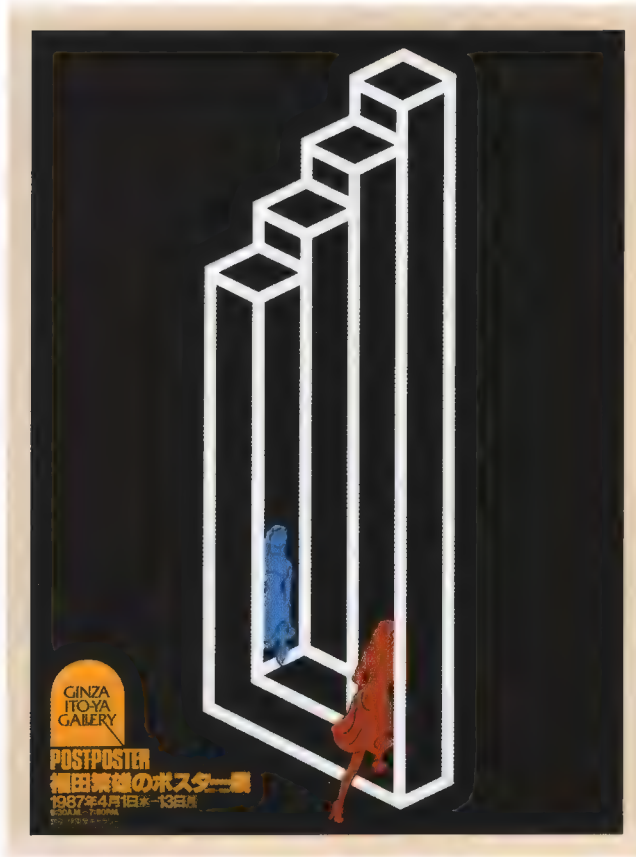


A lovely variation on the impossible triangle.

Thinking about Life's Paradoxes

The three columns have contradictory depth relationships.

Fukuda's Strange Twisted Figure



Another strange figure.

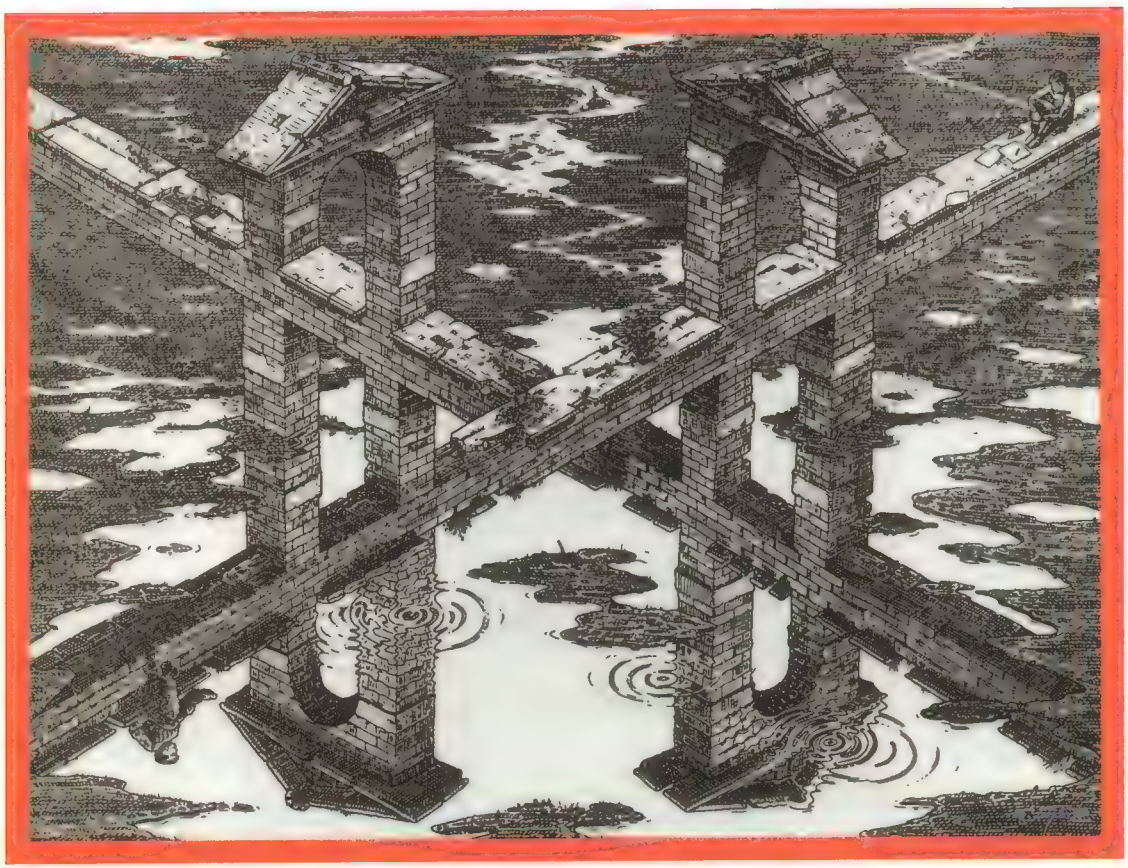
Gateway to the Fourth Dimension

Lots of paradoxes here.

Contemplating an Impossible Cube

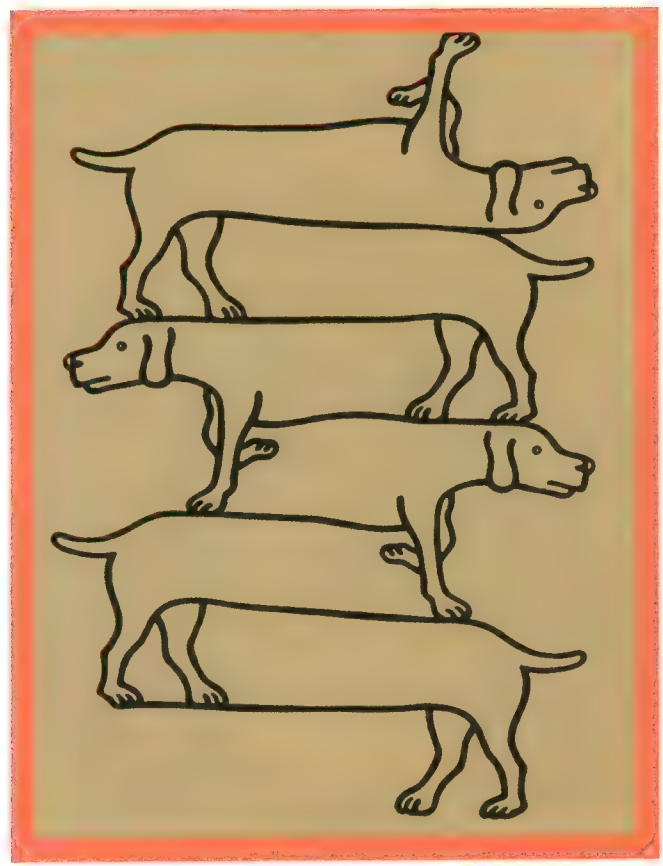
This man is holding an impossible cube.

Junctions with Some Unusual Buildings



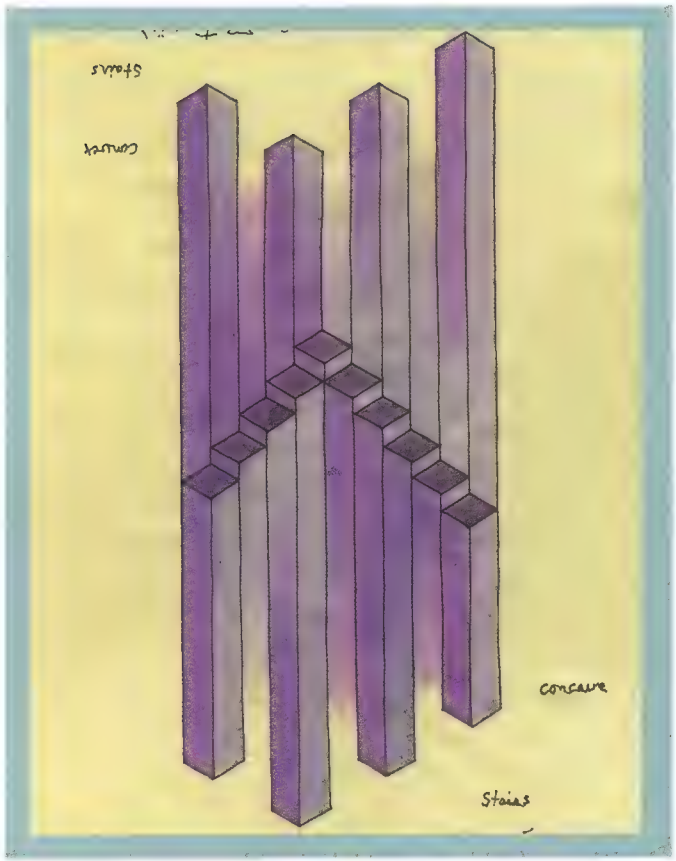
What is wrong with the buildings on top of the roadways?

Packing Problem with Dogs



How can this be?

Inverted Impossibility



This figure is impossible right side up, and also impossible when you turn it upside down.

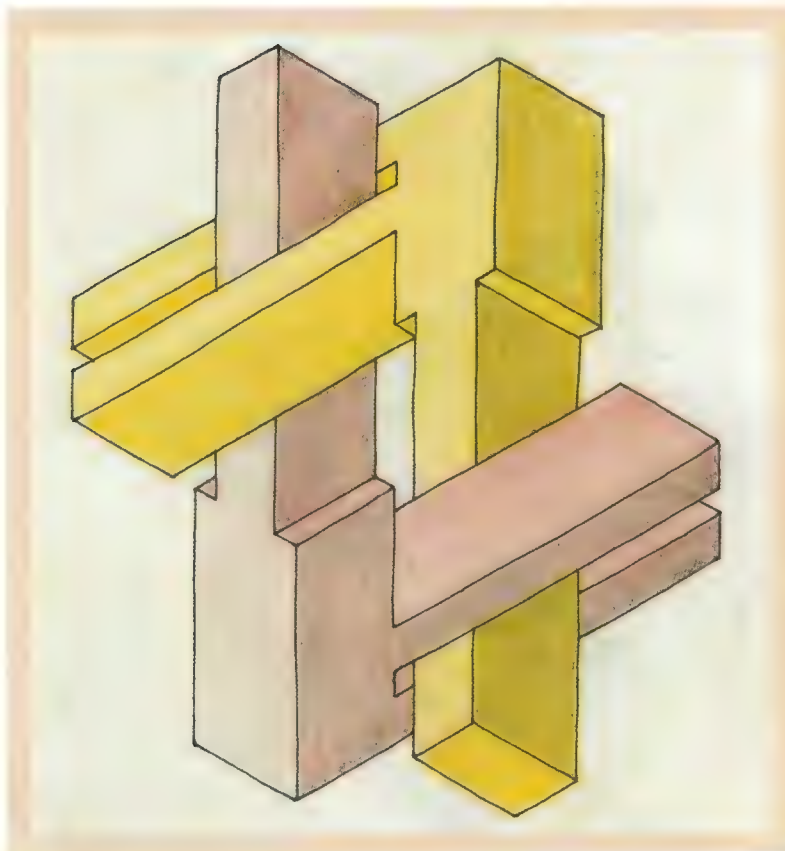
The Impossible Triangle

This is a physical model of the impossible triangle.

Moretti's Sculpture of the Thiery Figure

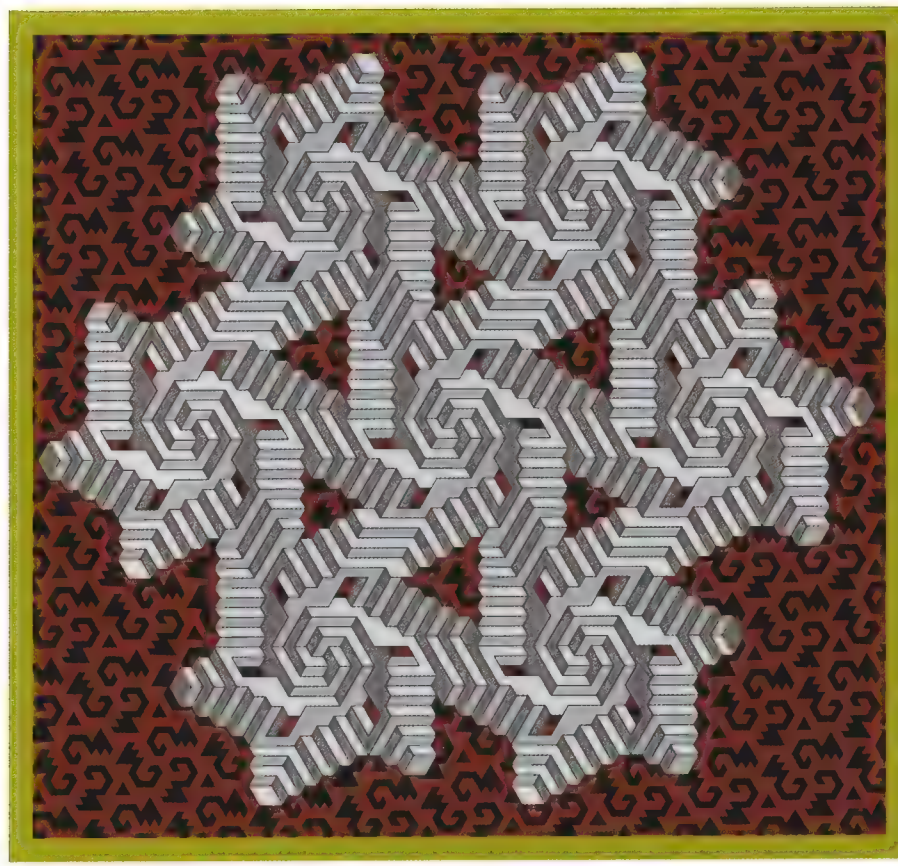
A set of impossible blocks. The middle section can either be seen as the bottom of the top block, or the top of the bottom block.

An Impossible Connection



These two figures are connected in an impossible way.

Flip-Flop



Ponder this set of impossible stairs. They will flip-flop if you stare at them.

Moretti's Impossible Fork

There are three blocks on the top and only two on the bottom in this sculpture.

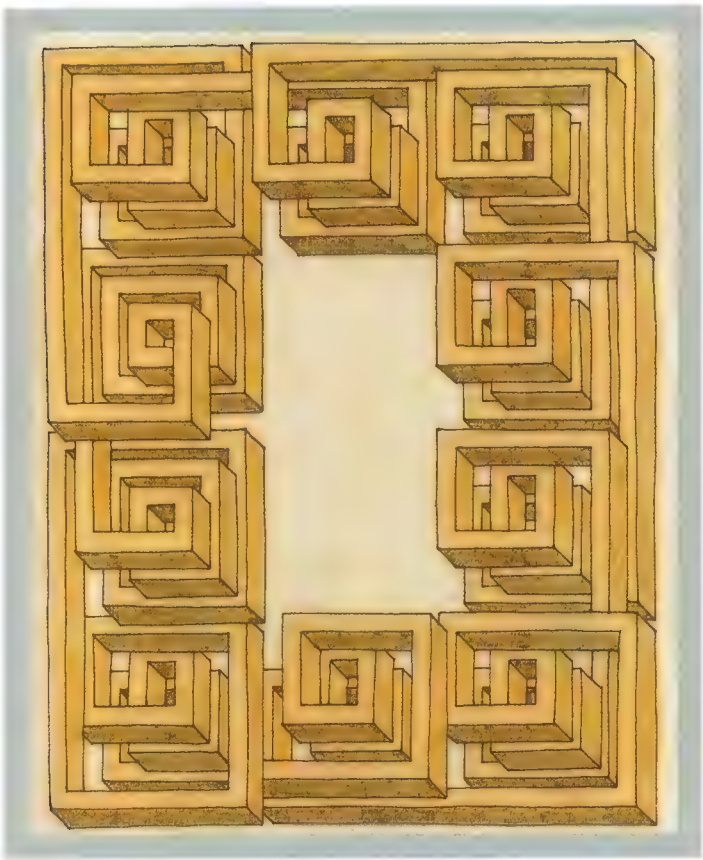
Simultaneous Directions

What is impossible about this window sill?

Fukuda's Impossible Columns

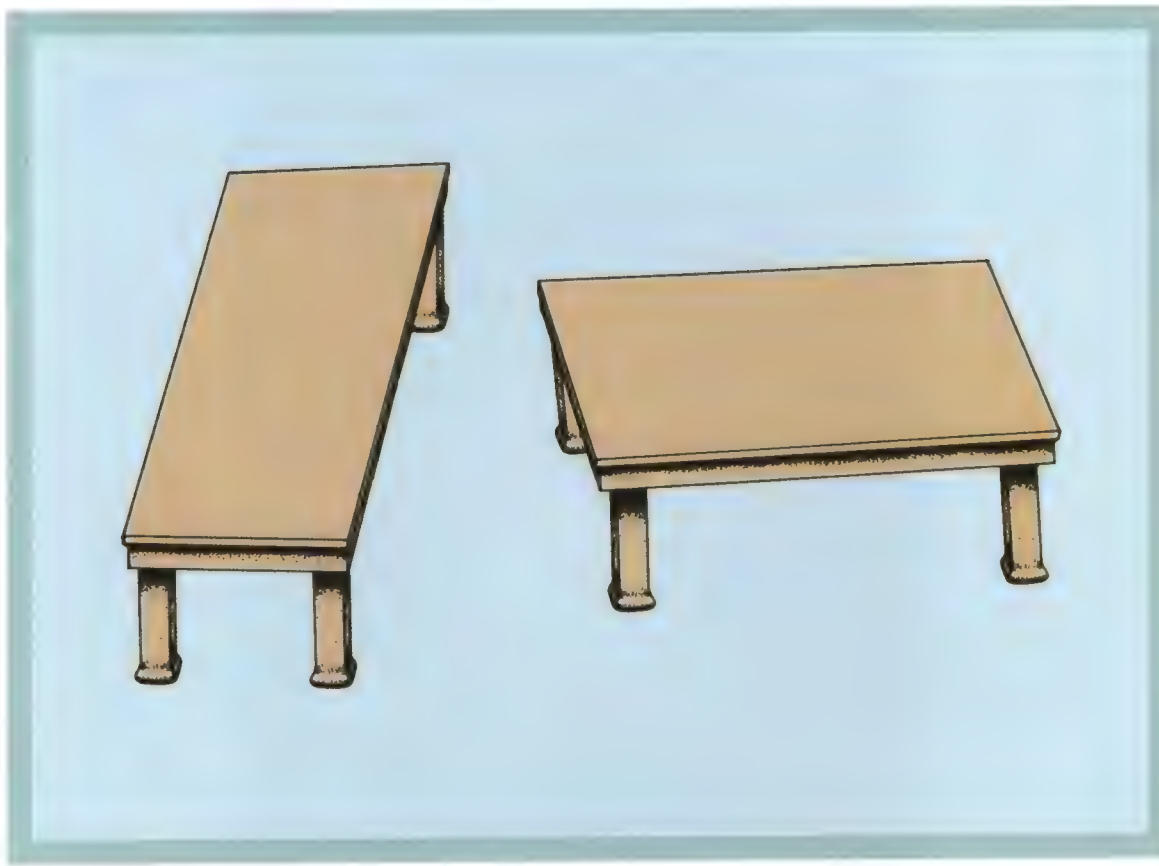
This is a physical model of a set of impossible columns. Cover the top half and you will see two columns on the bottom. Cover the bottom and you will see three cylindrical columns on the top.

Final Thoughts



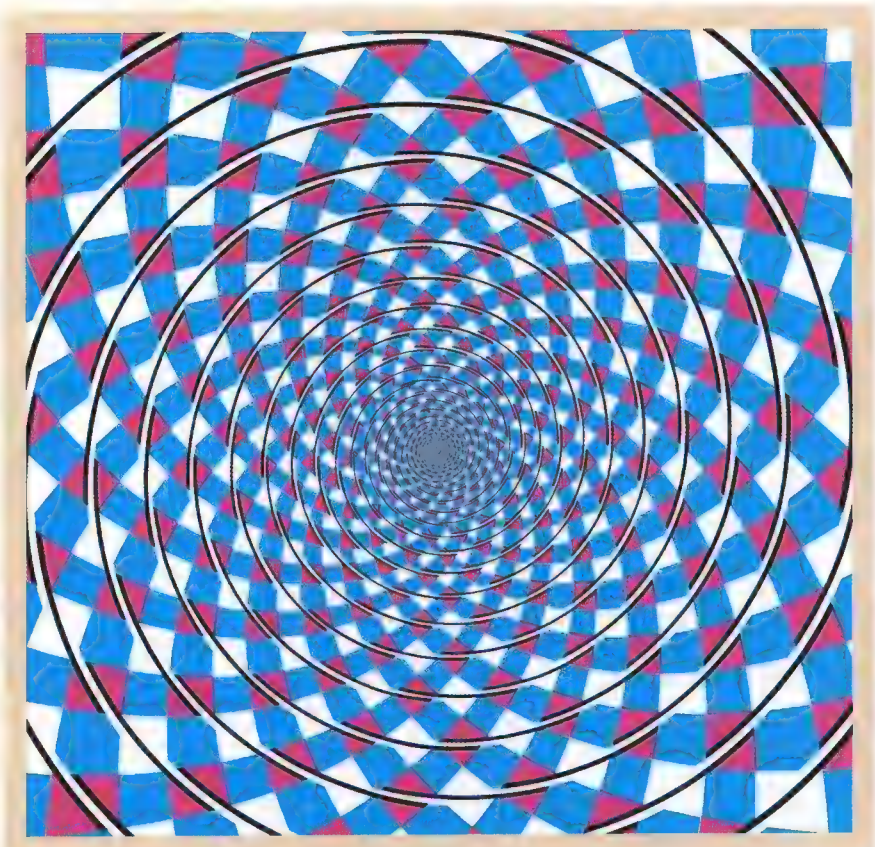
An impossible meander to leave you thinking.

Shepard's Tabletop Illusion



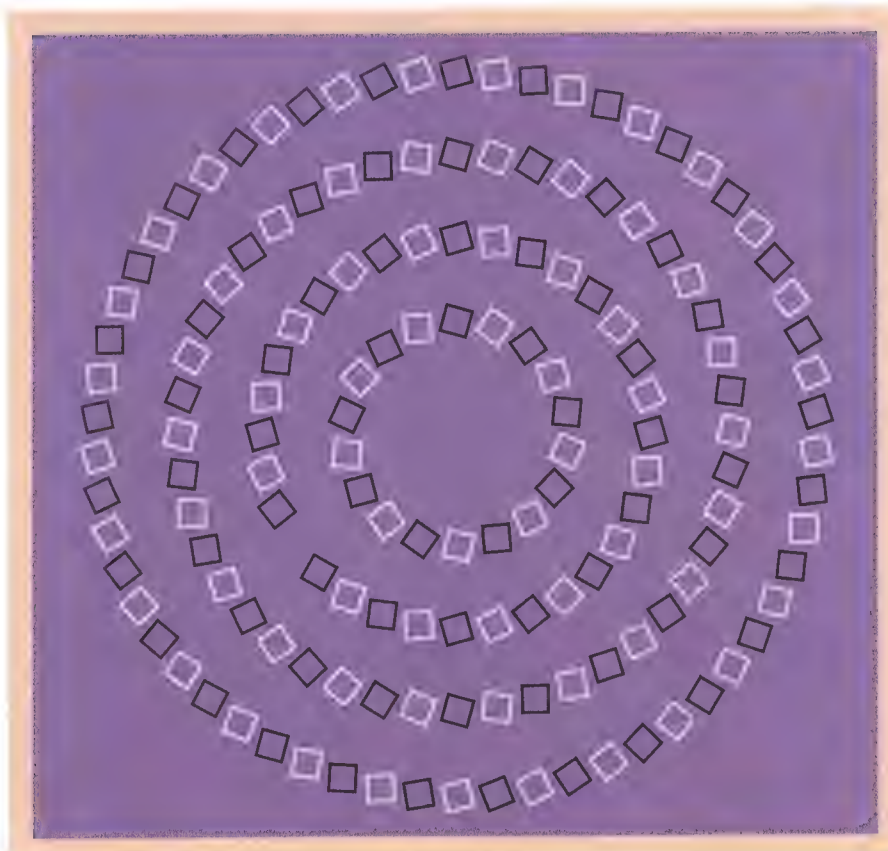
Believe it or not, both tabletops are identical in size and shape!
Carefully trace them to check your answer.

Fraser Spiral



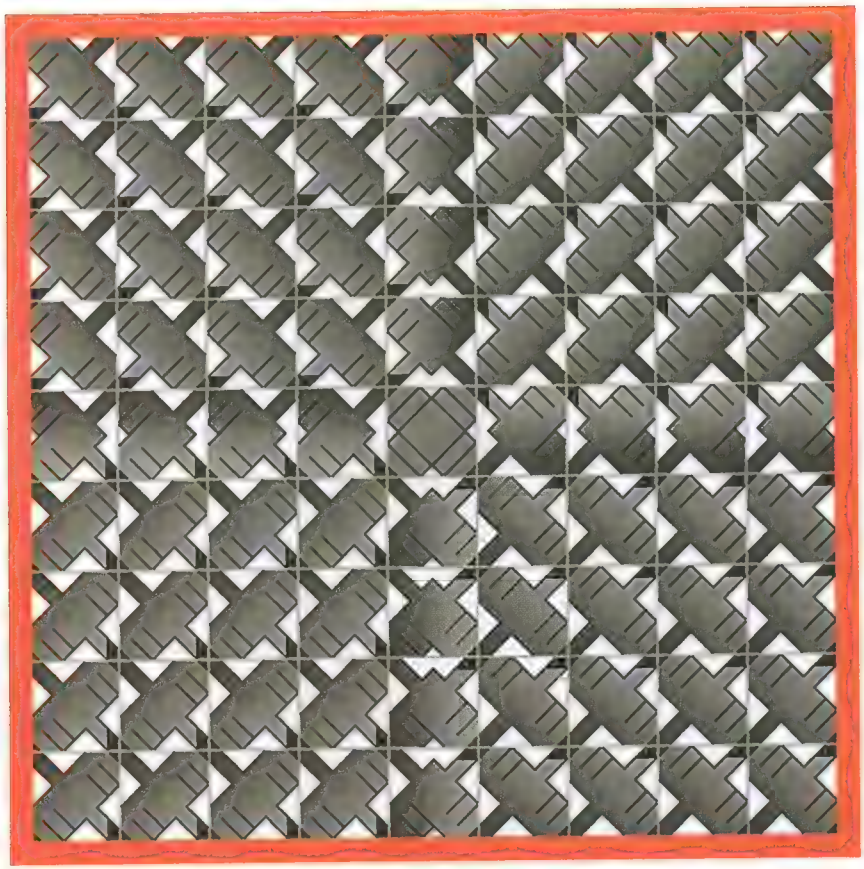
Do you perceive a spiral? It is really a series of concentric circles. Cover half the image to test your answer.

Pinna's Intertwining Illusion



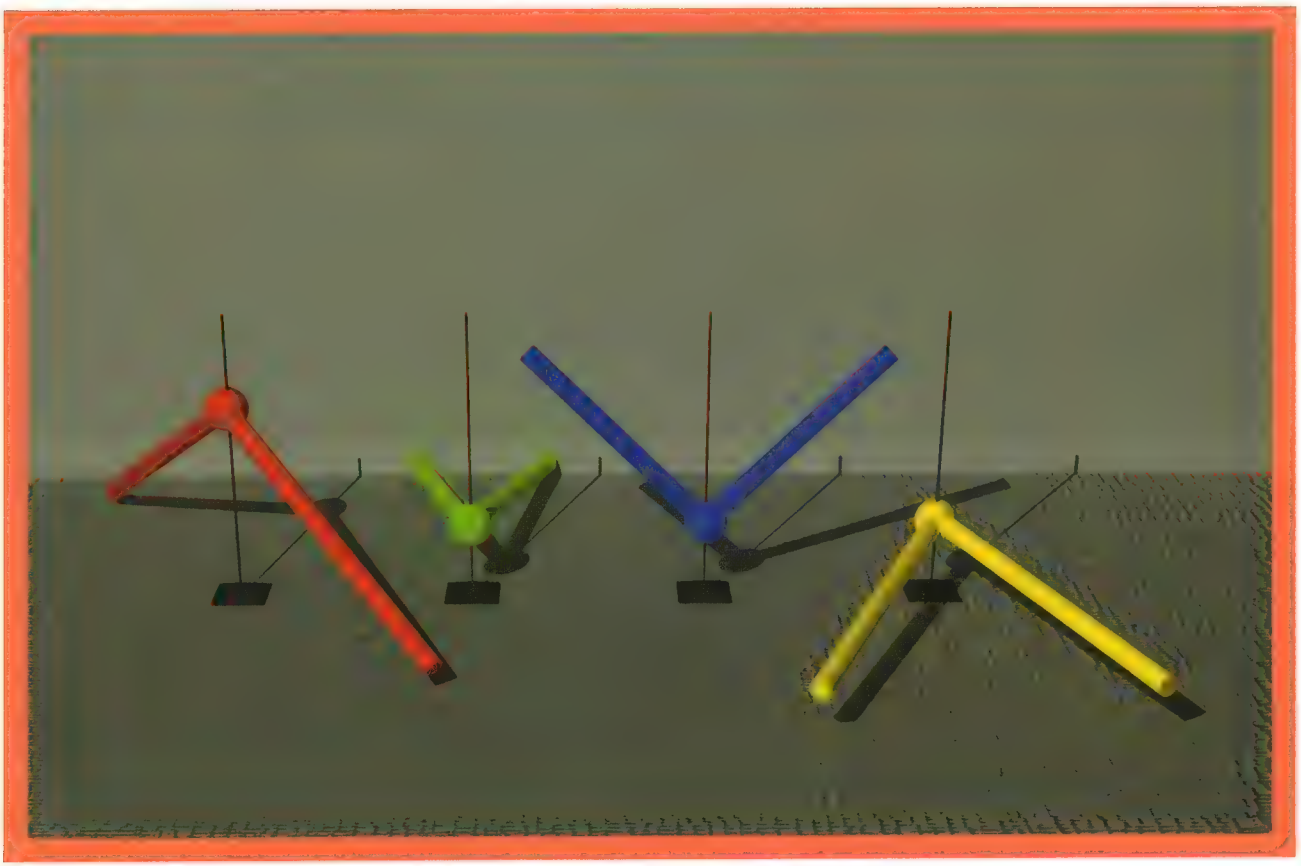
Do these circles look like they cross each other?
They don't! They are perfect circles.

Café Escher



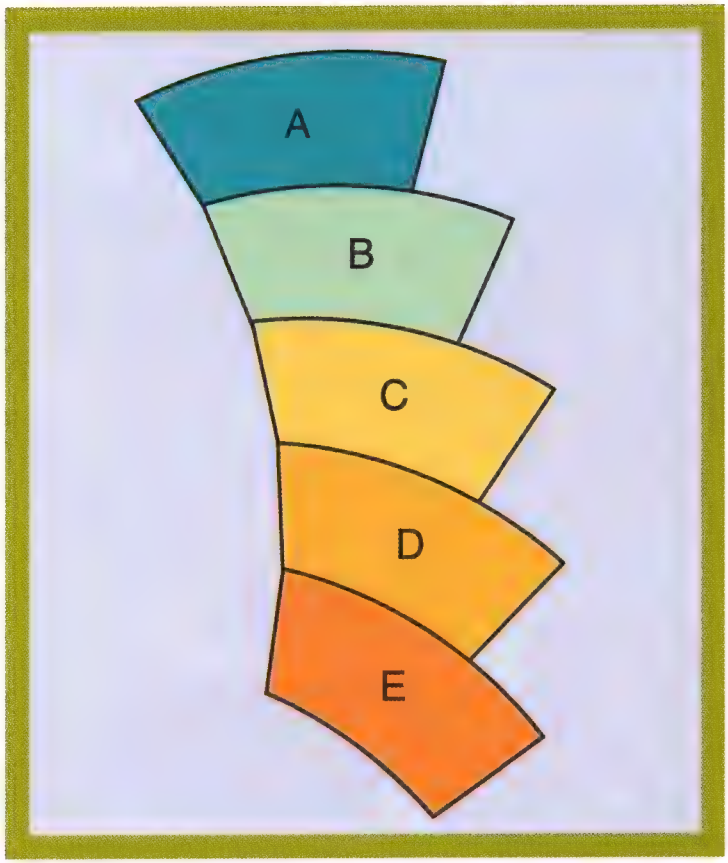
Are the horizontal and vertical lines all straight and parallel to each other? Check your answer with a straightedge.

Purves and Lotto's Perspective Illusion



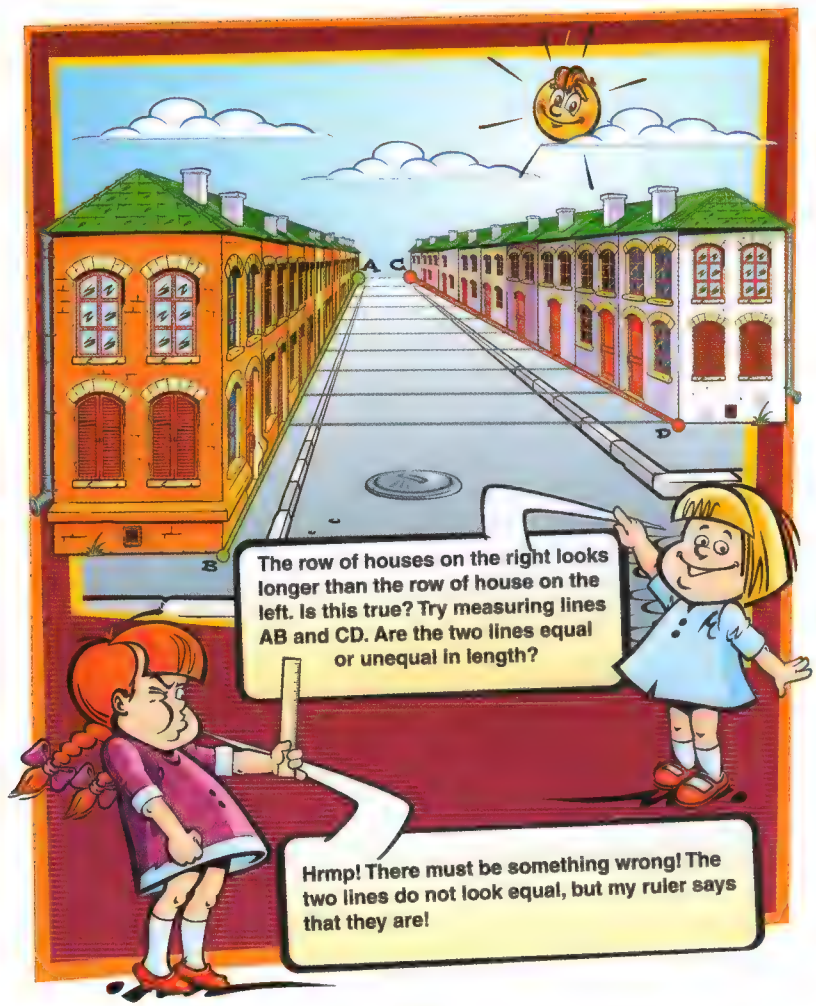
Which colored angle appears the largest? Which appears to be the smallest angle? Check your answer, and you might be quite surprised.

Wundt's Illusion

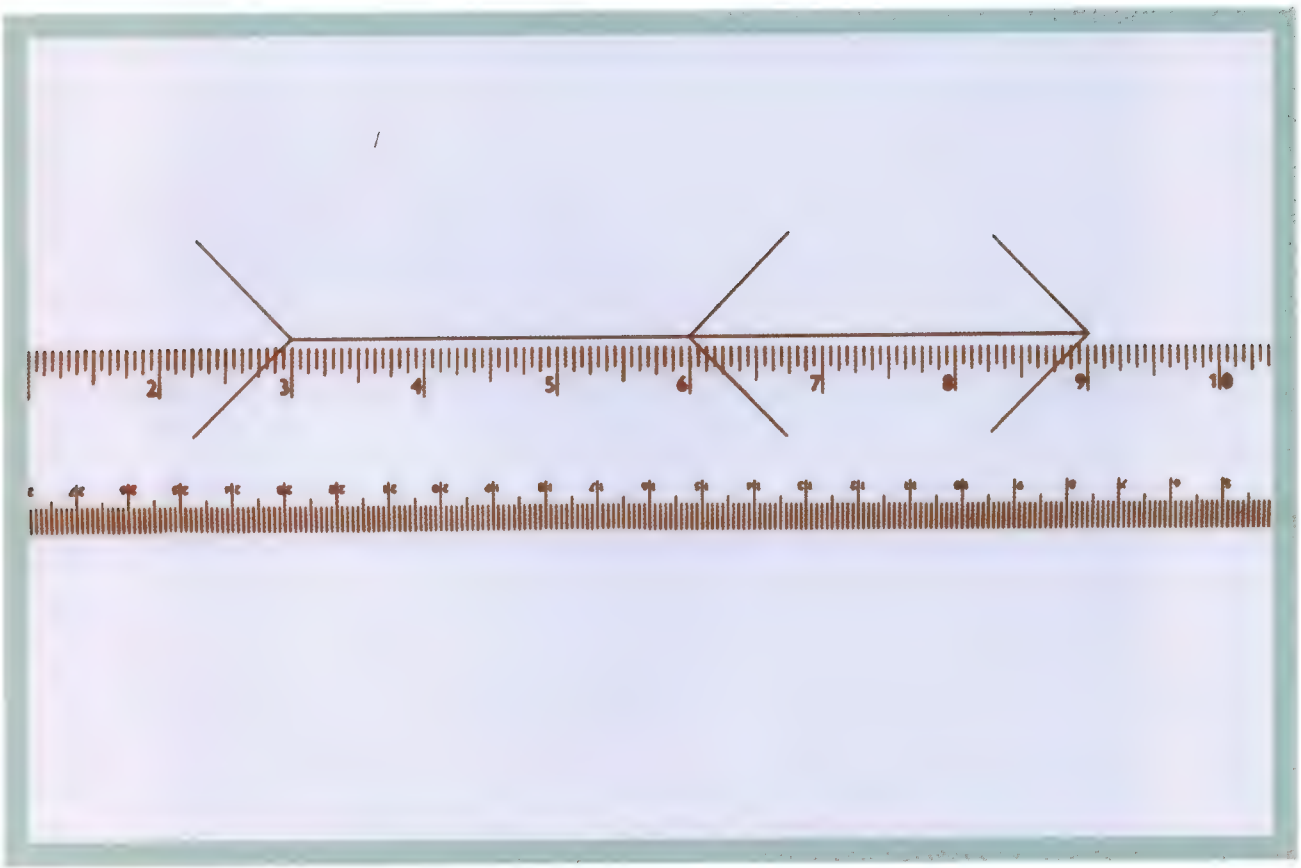


Which is the largest piece? Or are they all the same size? Check your answer.

An Illusion of Extent

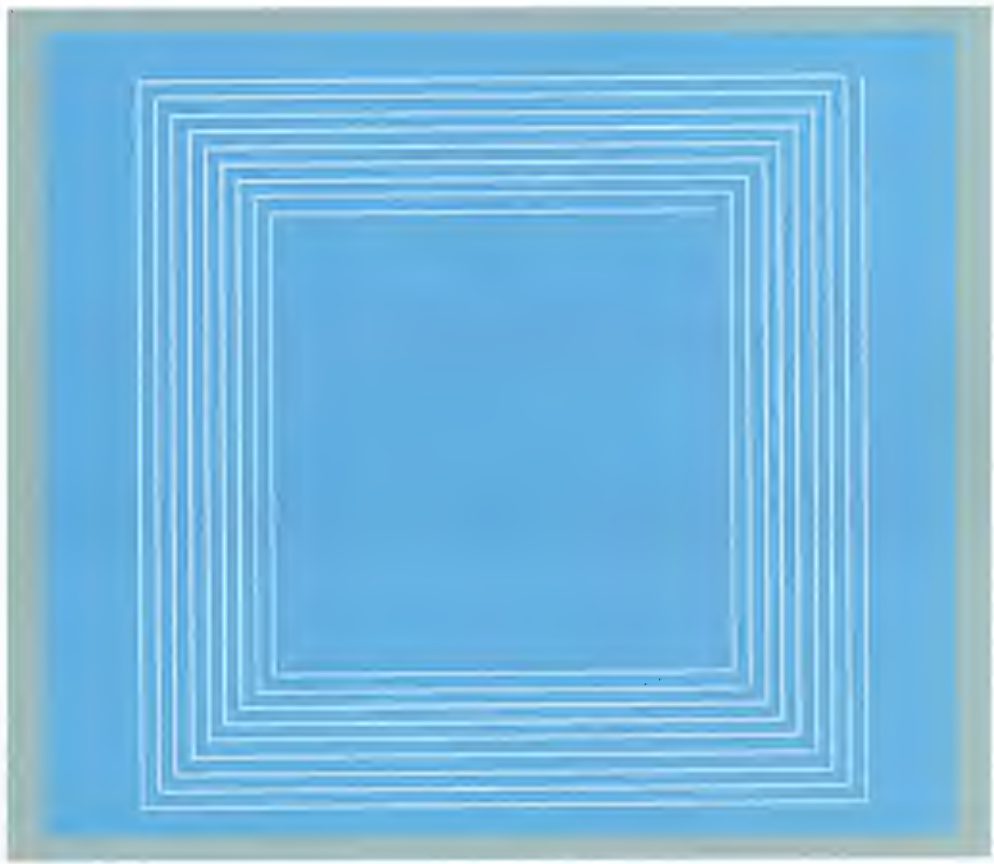


The Müller-Lyer Illusion



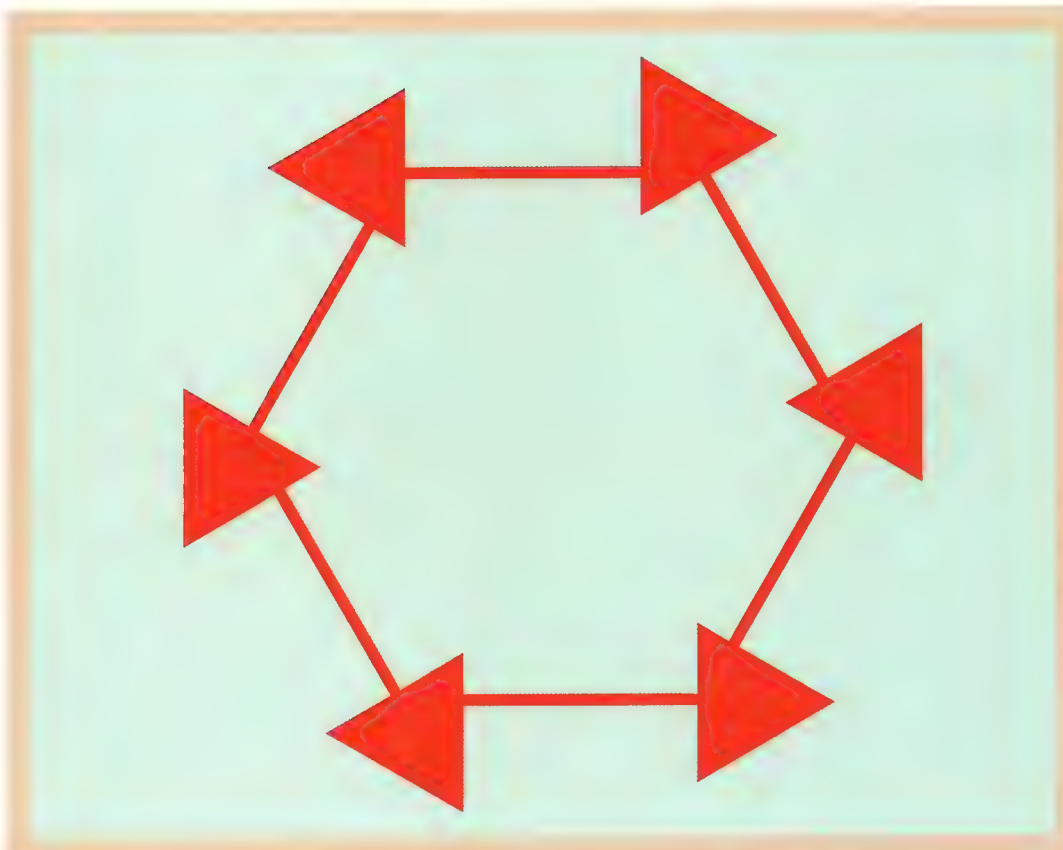
Is the line on the left in between the arrows longer than the line in between the arrows on the right? Check your answer.

Concentric Box Illusion



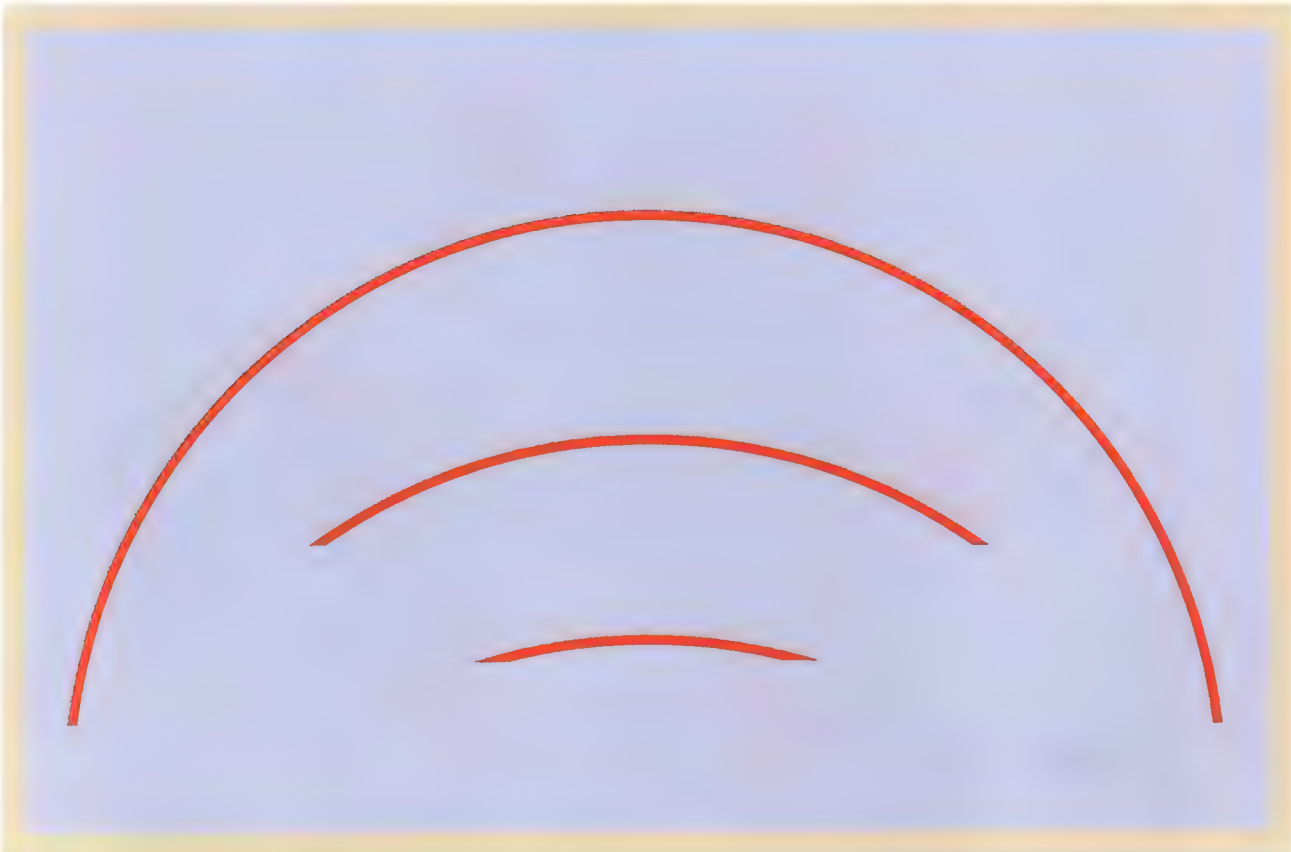
Do you perceive perfect squares one within the other?
Or is it one continuous line?

Gerbino's Illusion



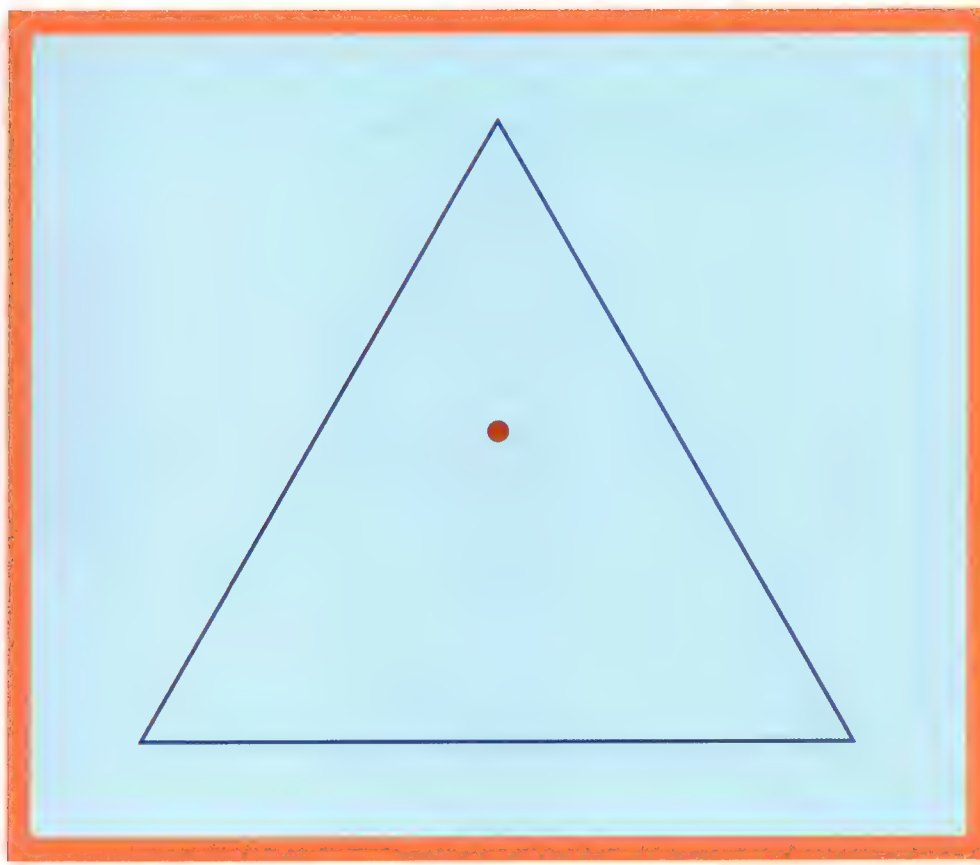
Do the line segments seem to be misaligned underneath the triangles?
Do the lines intersect with each other perfectly?

Tolansky's Curvature Illusion



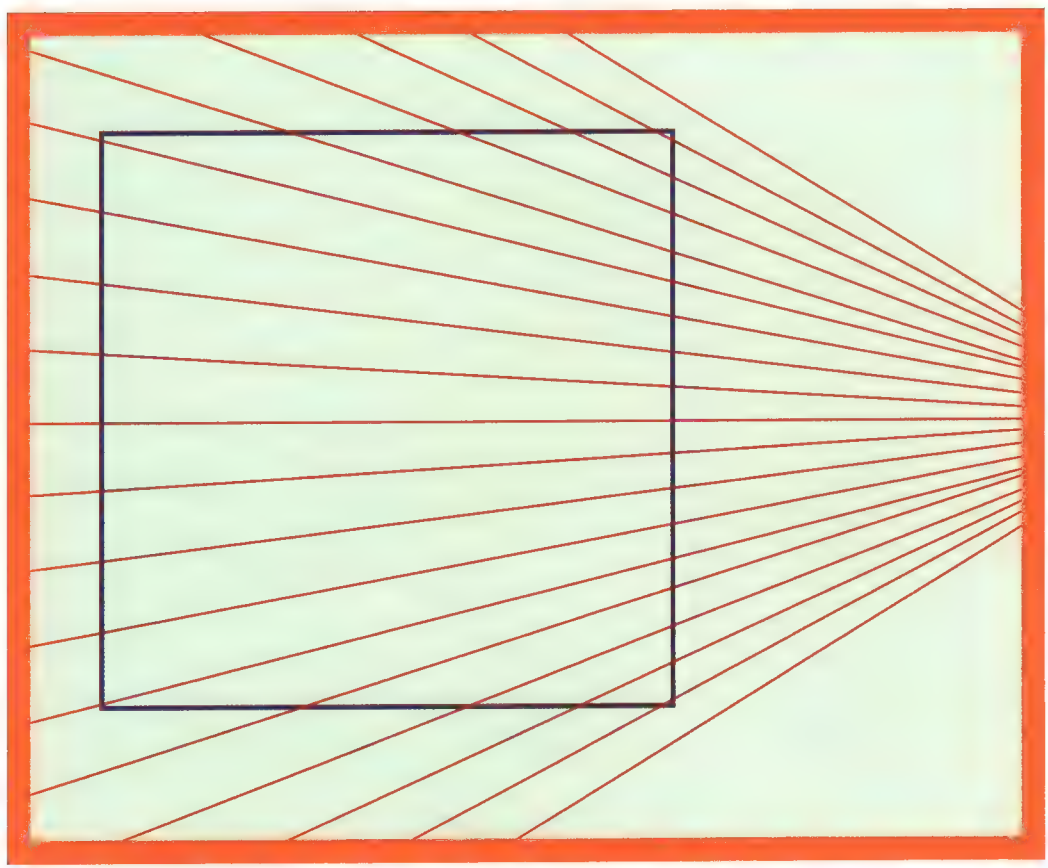
Which line segment has the greatest radius of curvature?
They are all the same.

Height Estimation Illusion



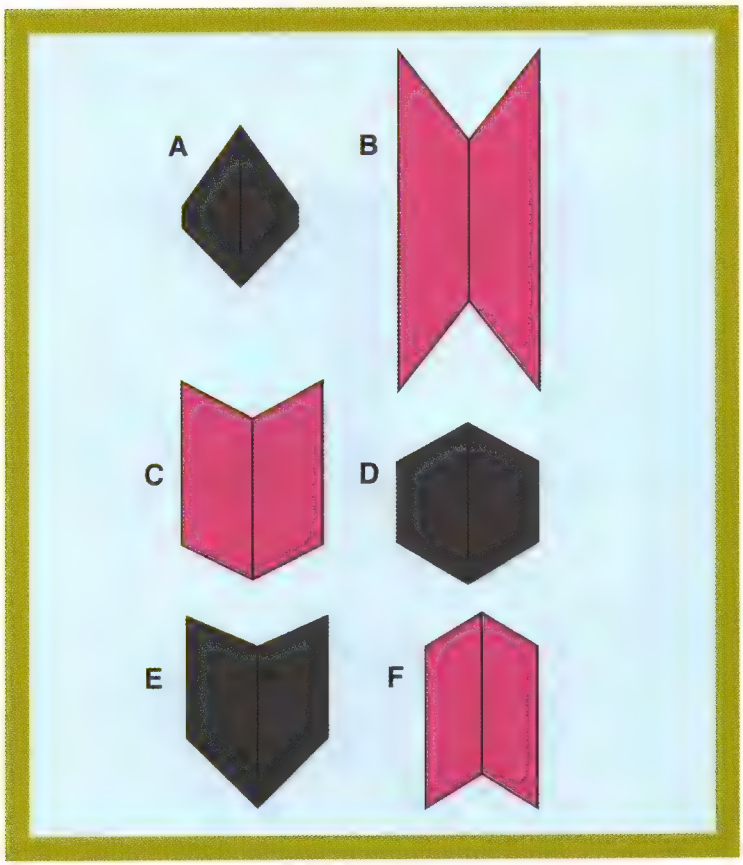
Does the dot appear half way up the triangle?
Check your answer with a ruler.

Orbison Illusion



Does this square appear to be warped? Check your answer with a straightedge or just trace the outline of the square.

Which is the Shorter Line?

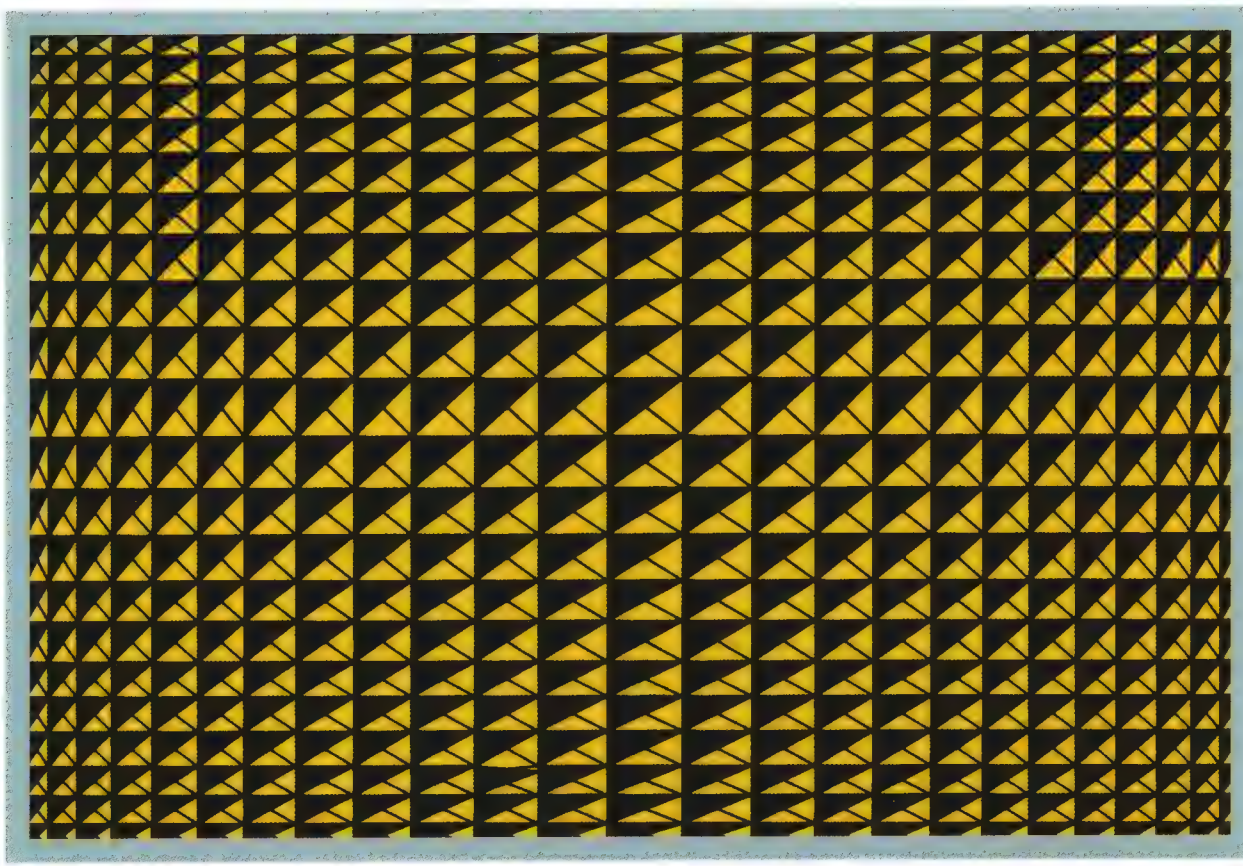


Which middle line (A, B, C, D, E, F) is the shortest line segment? Check your answer with a ruler.

The Ames Room Illusion

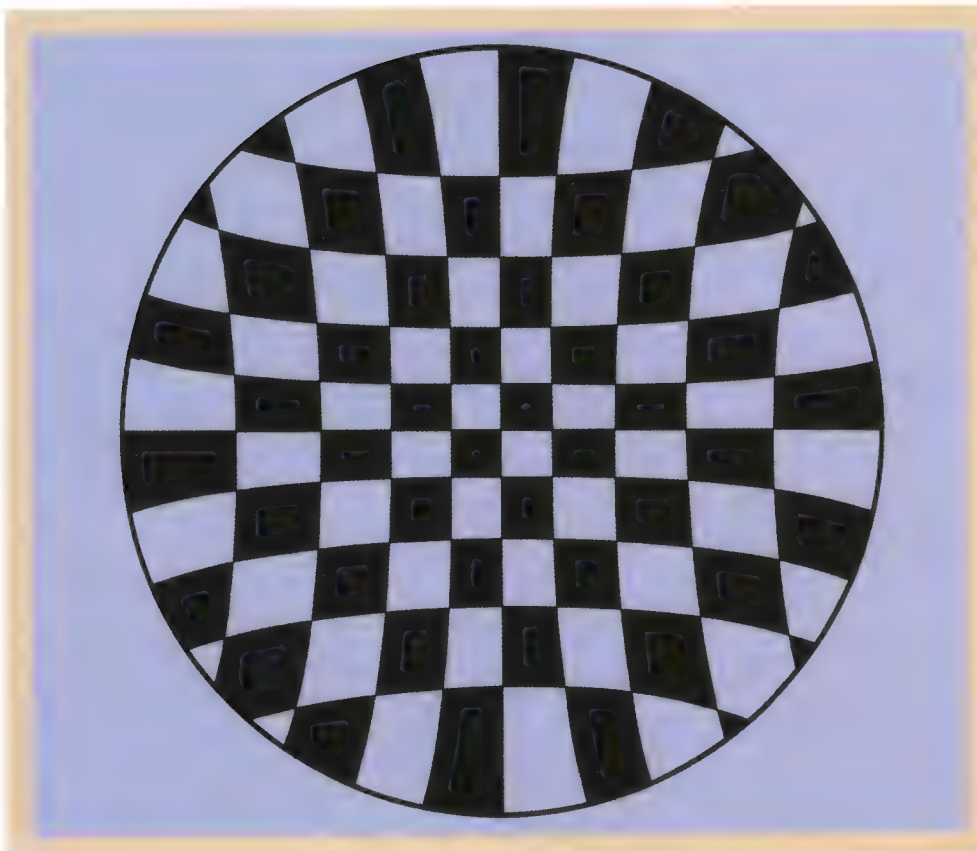
Although the girl appears to be smaller than the boy, she is really the same size. In addition, the room looks cubic, but the left corner is really twice as far away and at a lower elevation than the right corner.

Curved Lines Illusion



Do the lines between the black and yellow triangles appear to curve? Check your answer with a straightedge.

Fisheye Illusion



Move this image slowly towards one eye and the lines will straighten out.

An Illusion of Context

Cover the man and the fish looks like a normal catch.
Cover the hand and the fish looks massive.

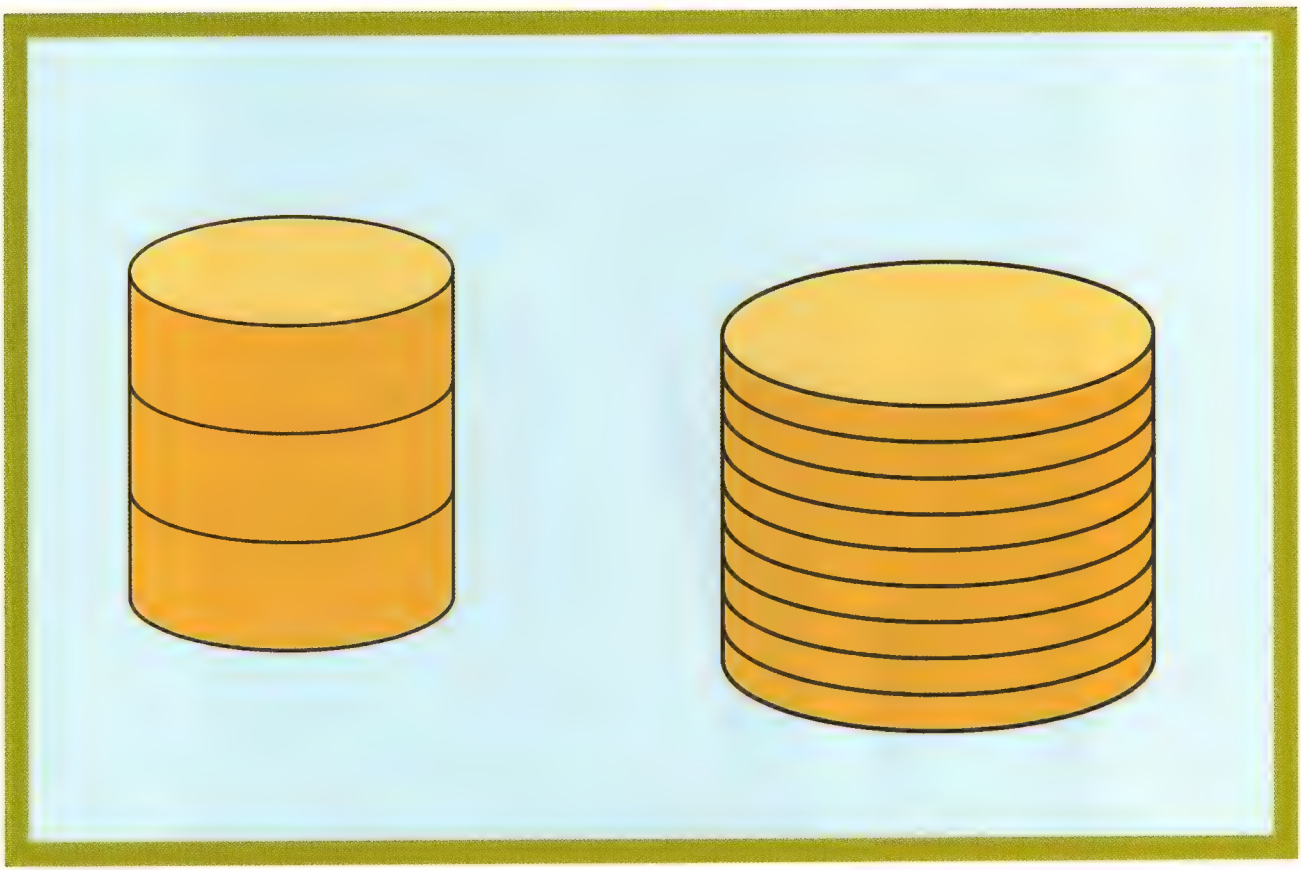
Foreshortening Illusion

If you had a string the length of the circumference of the cylinder's rim, how far down would it go? Try this illusion with the inside of a paper towel roll.

Size Distance Illusion

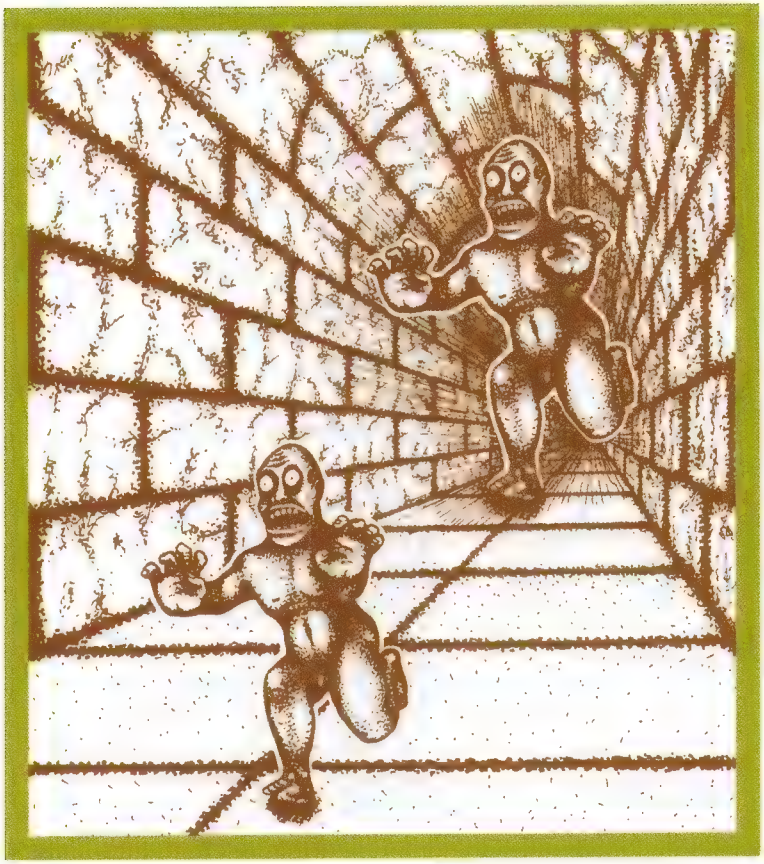
The man on the left looks like a midget, but he is the same size as the man in the background.

Stack of Coins Illusion



Which stack of coins is higher?

Terra Subterranea

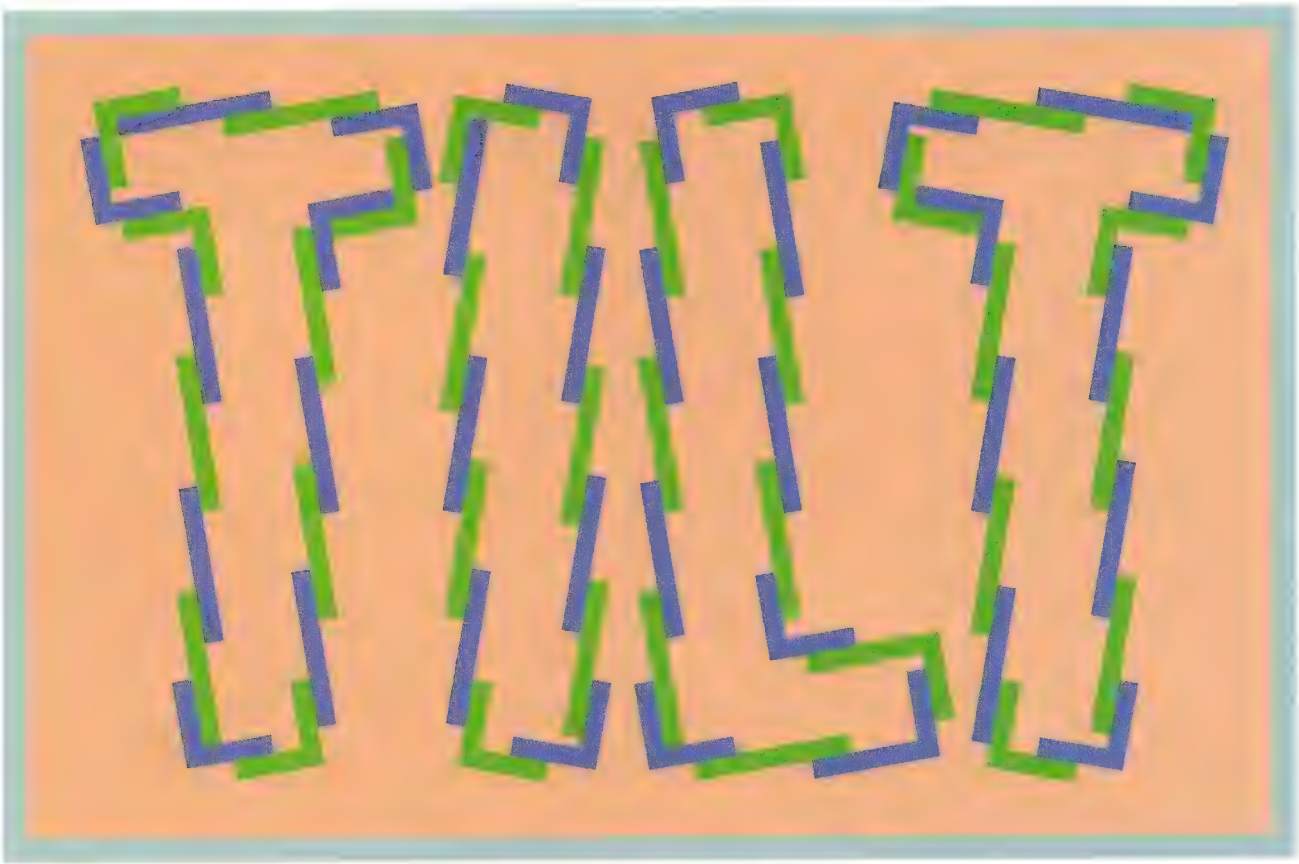


Does the creature in the background appear to be larger than the creature in the foreground? Check your answer with a ruler.

Odd Balconies

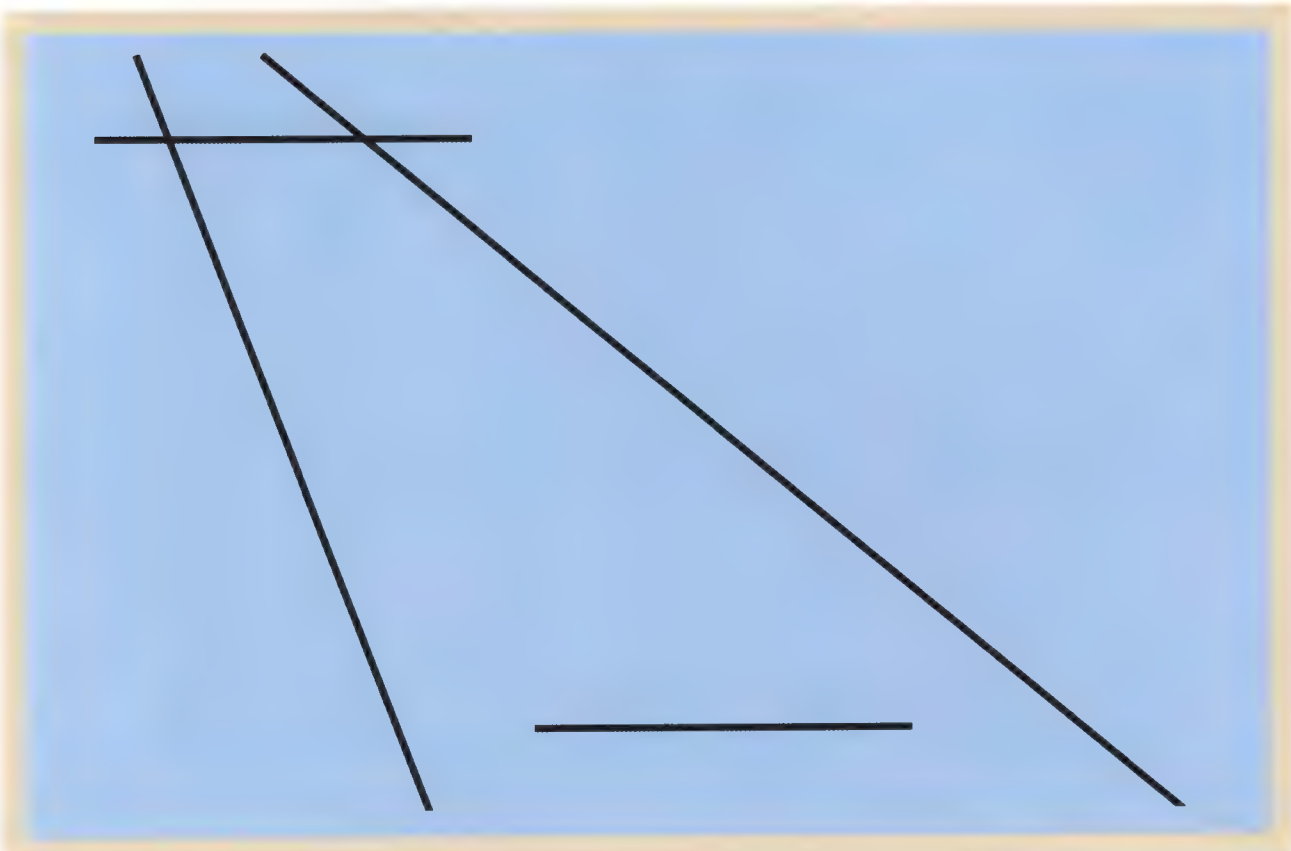
This is an odd building in New York City. From one side the balconies appear to be tilting upwards, but if you walk around to the other side, they appear to be tilting downward. How can that be?

Tilt



Do these letters appear to be tilted? Check your answer.

The Ponzo Illusion



Which horizontal line appears longer?
Check your answer.

The Poggendorf Illusion

Which colored line intersects with the white line?
Check your answer with a straightedge.

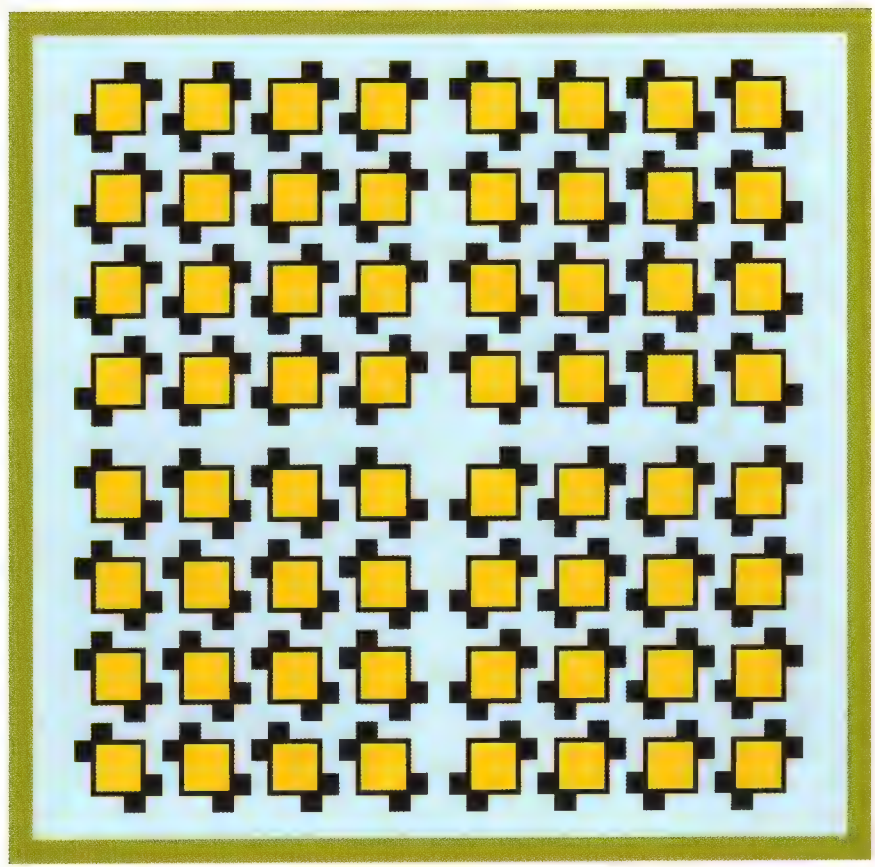
The Plank Illusion

These two men appear to change in height, although all they have done is change exact places on a level plank.

The Wundt Illusion

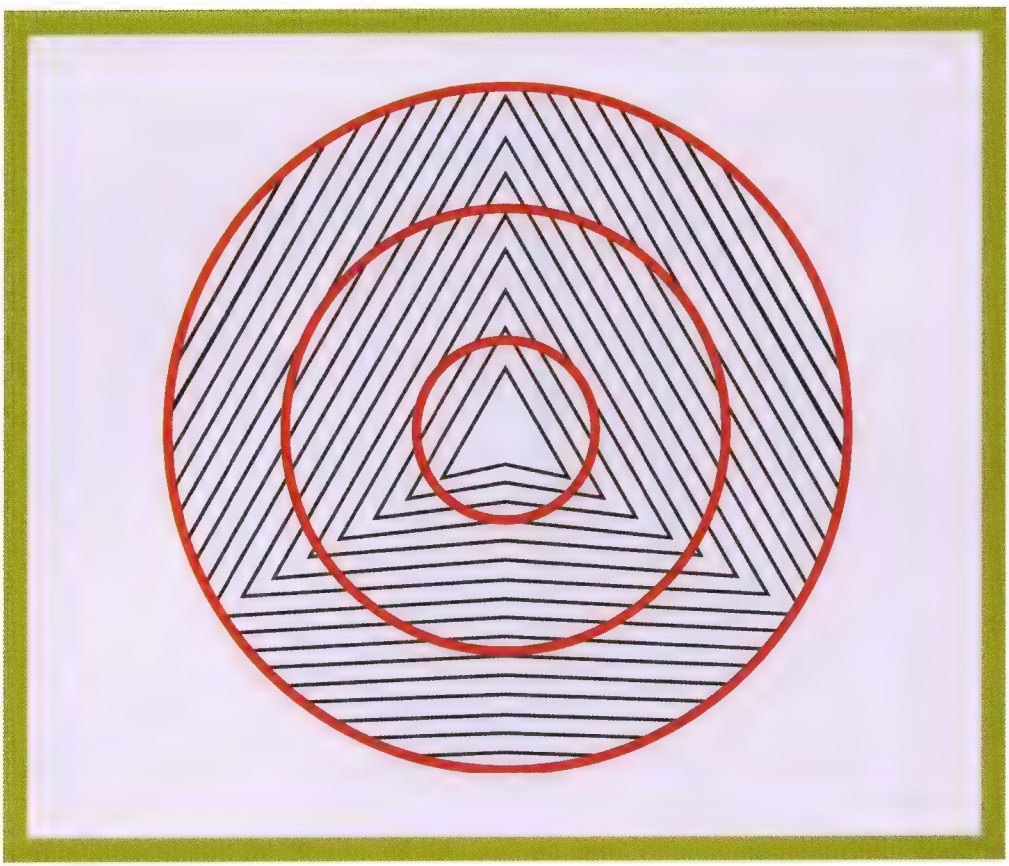
Does the figure on the left appear to be smaller than the figure on the right? Check your answer.

Exploding Squares



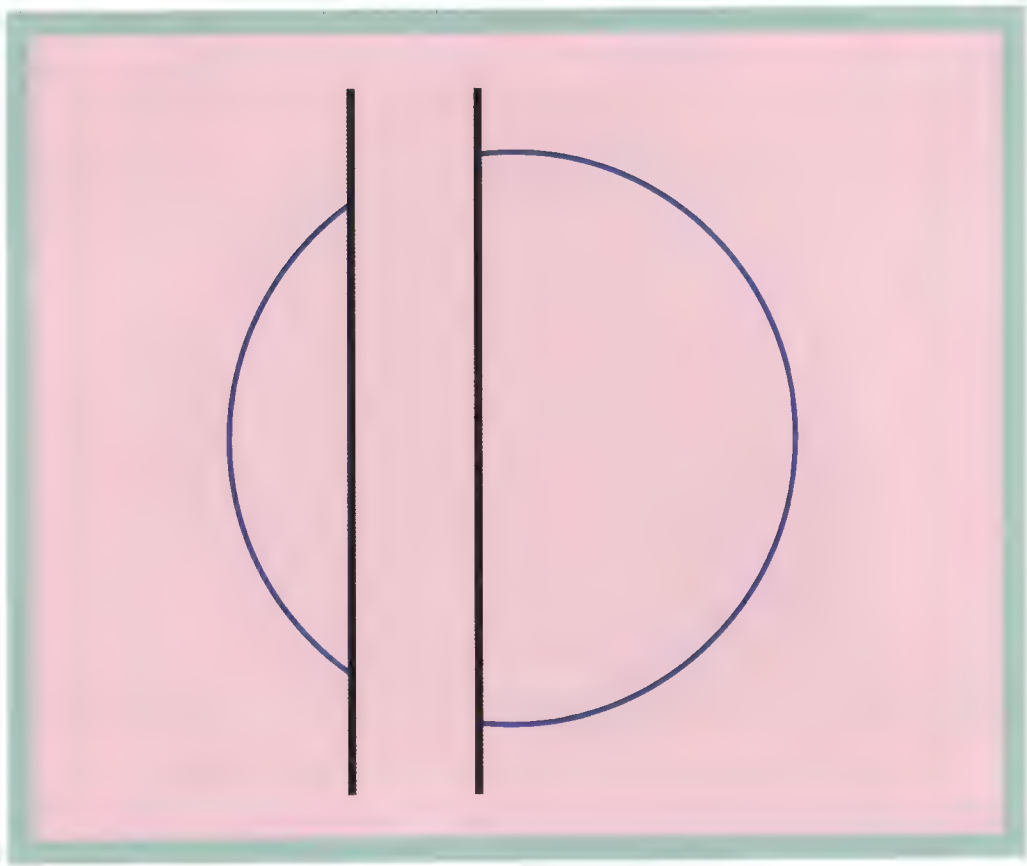
Do these squares appear to be spreading apart?

Distorted Circles



Do these circles appear to be distorted?

Poggendorf Illusion with a Circle

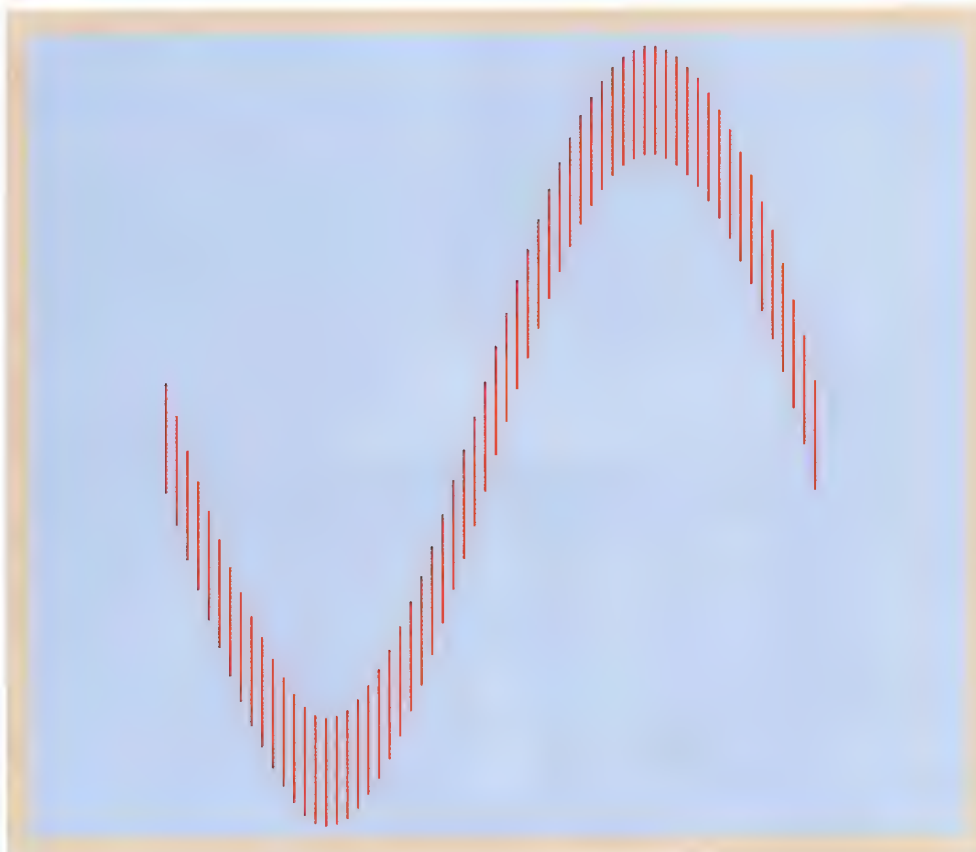


Is this a perfect circle? Does it appear to be aligned properly?

The Café Wall Illusion

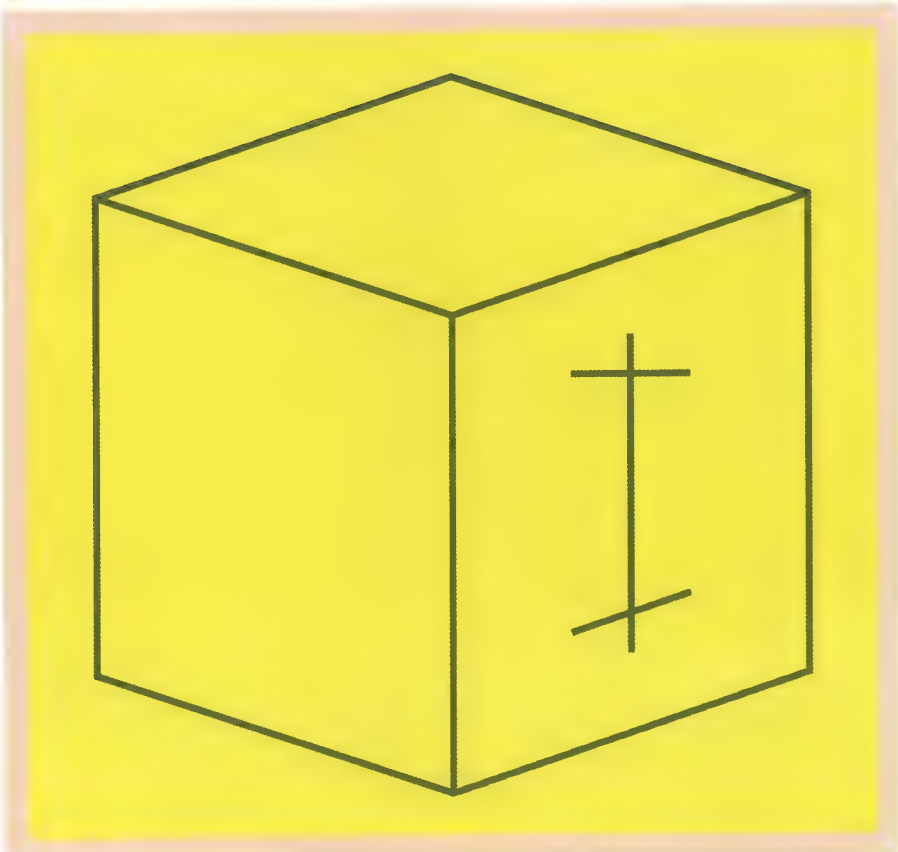
The pattern on the wall appears to be in wedges, but all the horizontal lines are straight and parallel.

Day's Sine Illusion



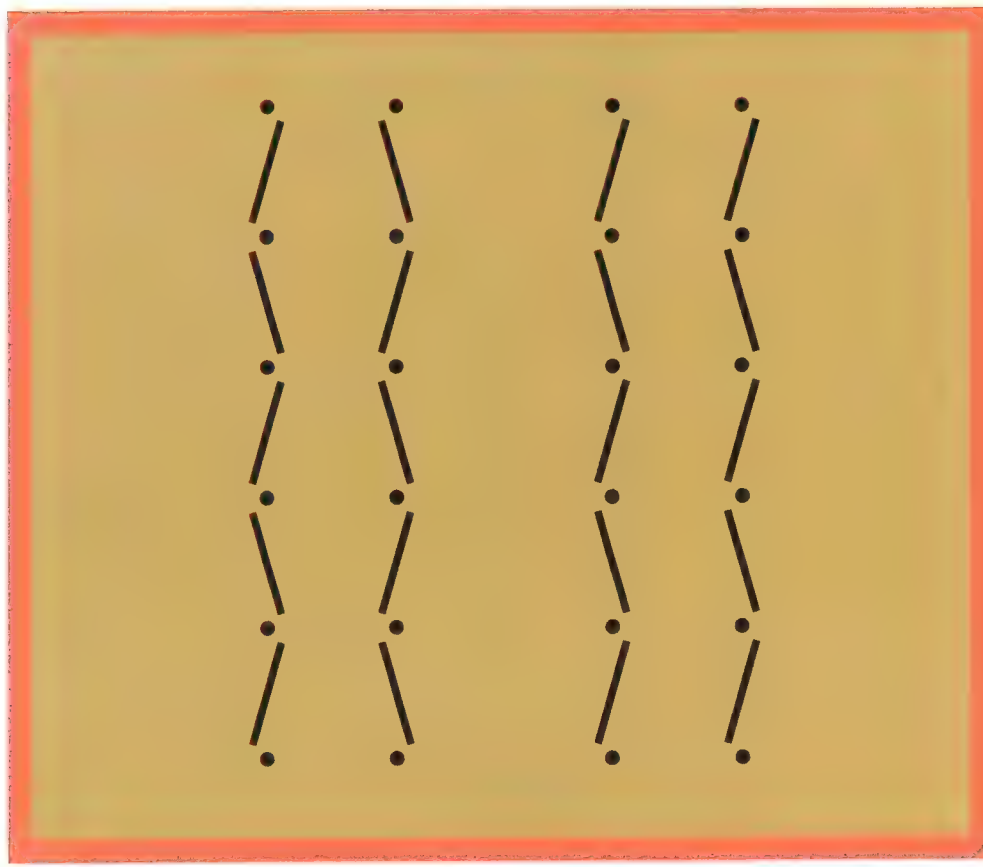
Do some line segments appear longer than others?
Check your answer with a ruler.

The Perspective Box Illusion



Look at the figure on the box and how the lines intersect.
Now cover just the box, but not the figure.
How do the lines intersect now?

Misaligned Dots

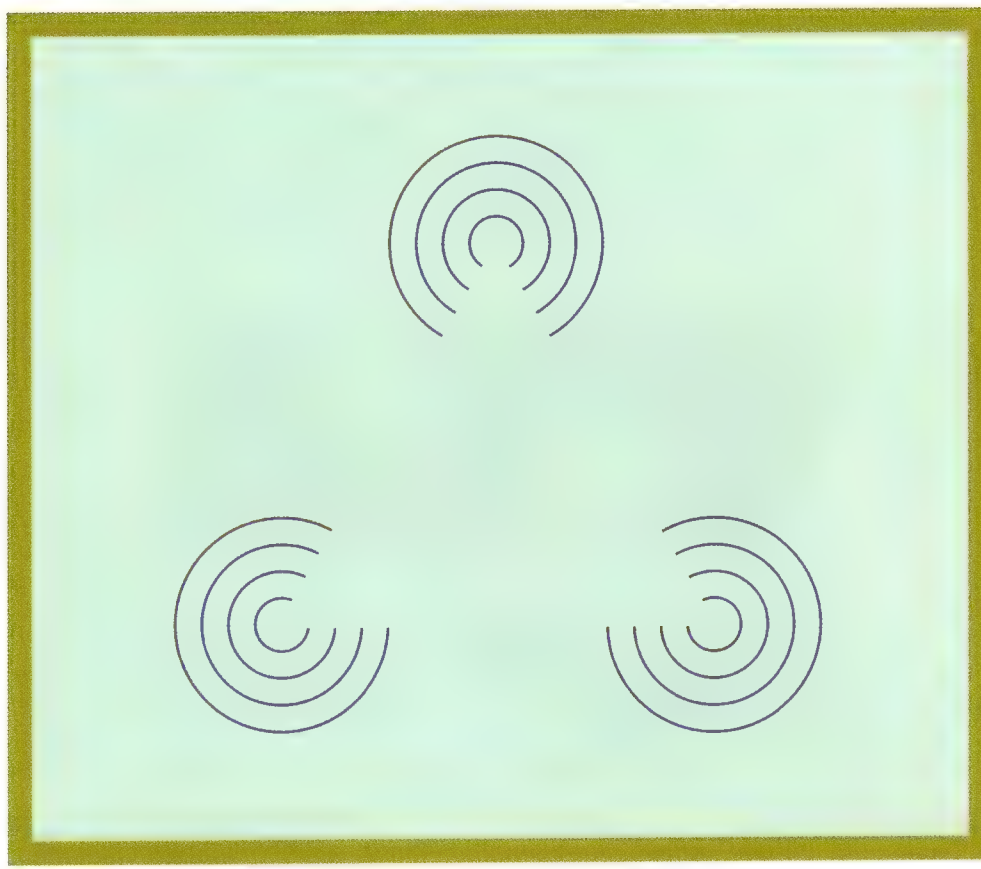


Do the dots appear misaligned?

Misaligned Eyes

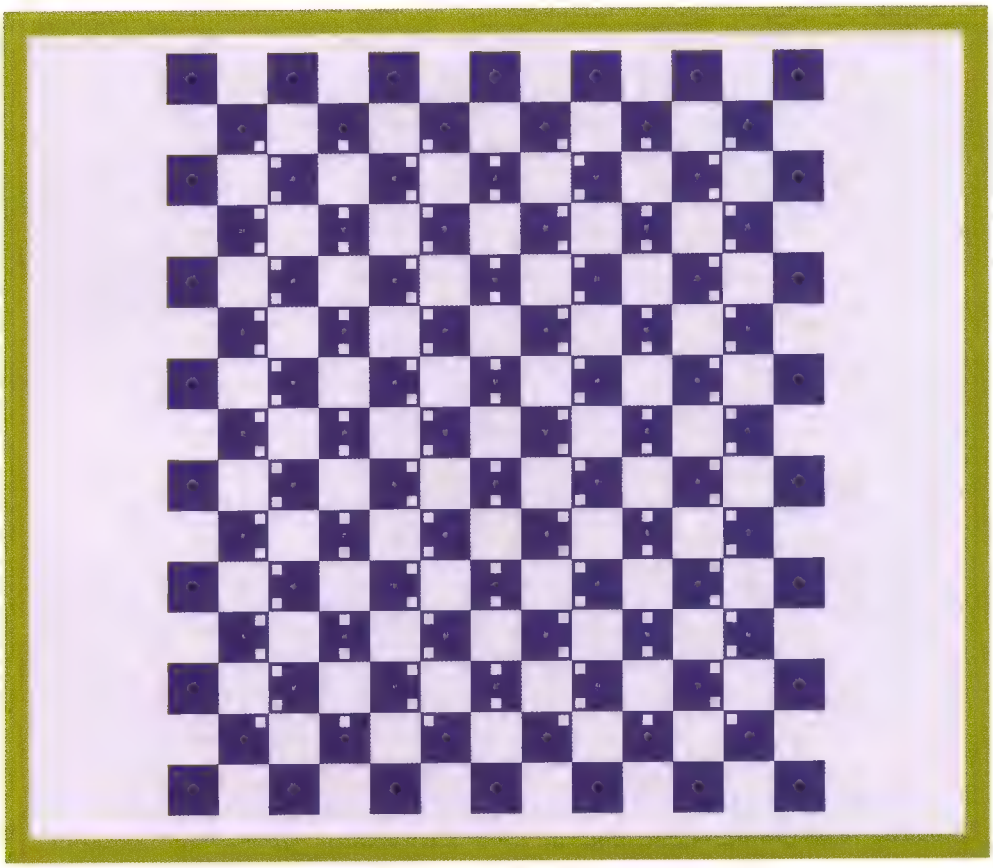
Do the eyes appear misaligned?

Illusory Triangle



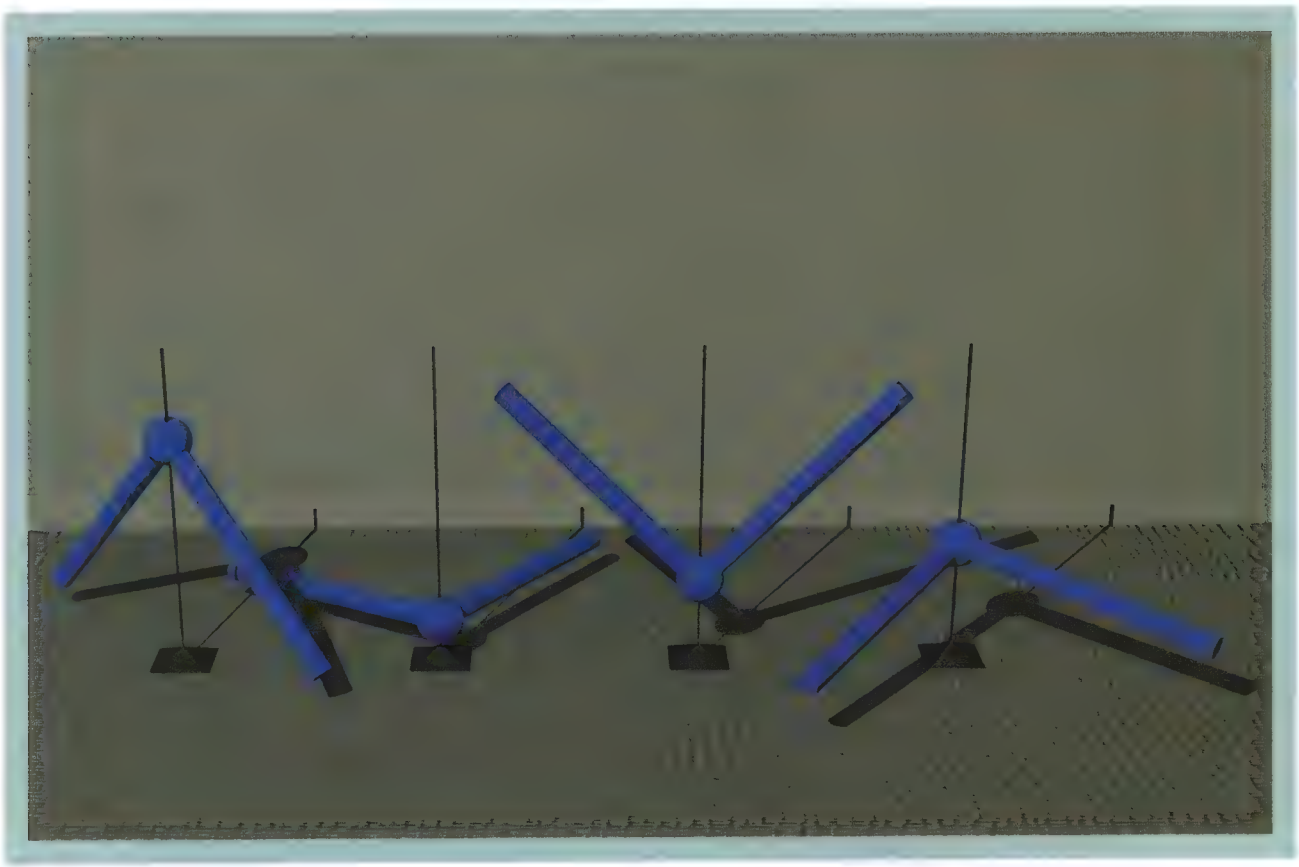
Do you perceive a triangle here? There are no edges to define it.

Potholder



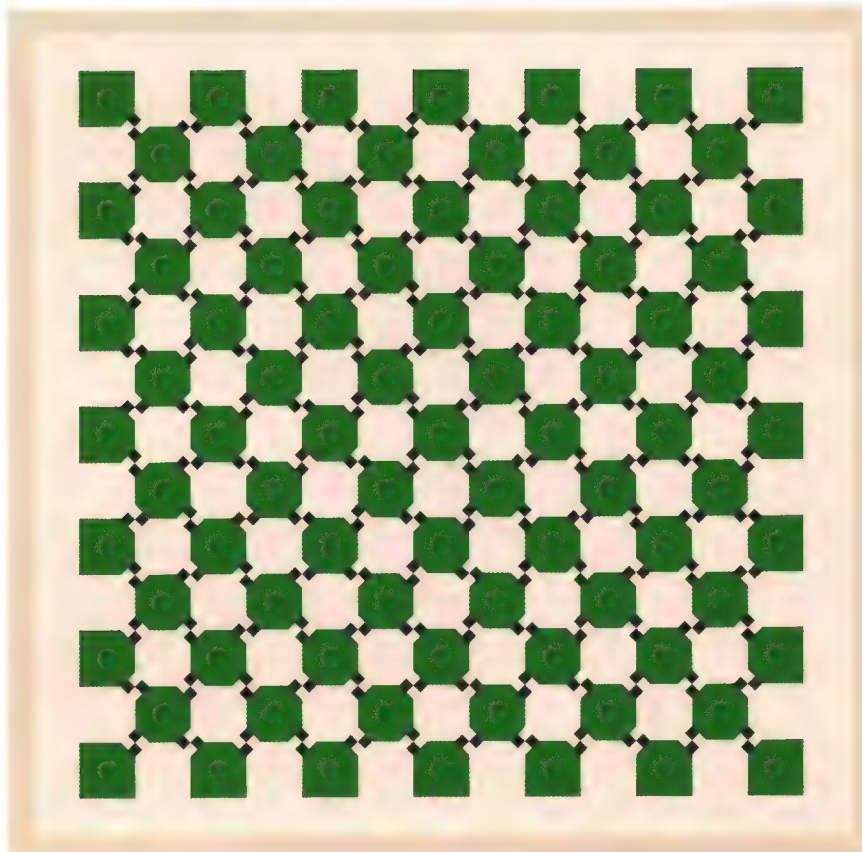
Do the lines appear to be bent? Check your answer with a ruler.

Purves and Lotto's Perspective Illusion



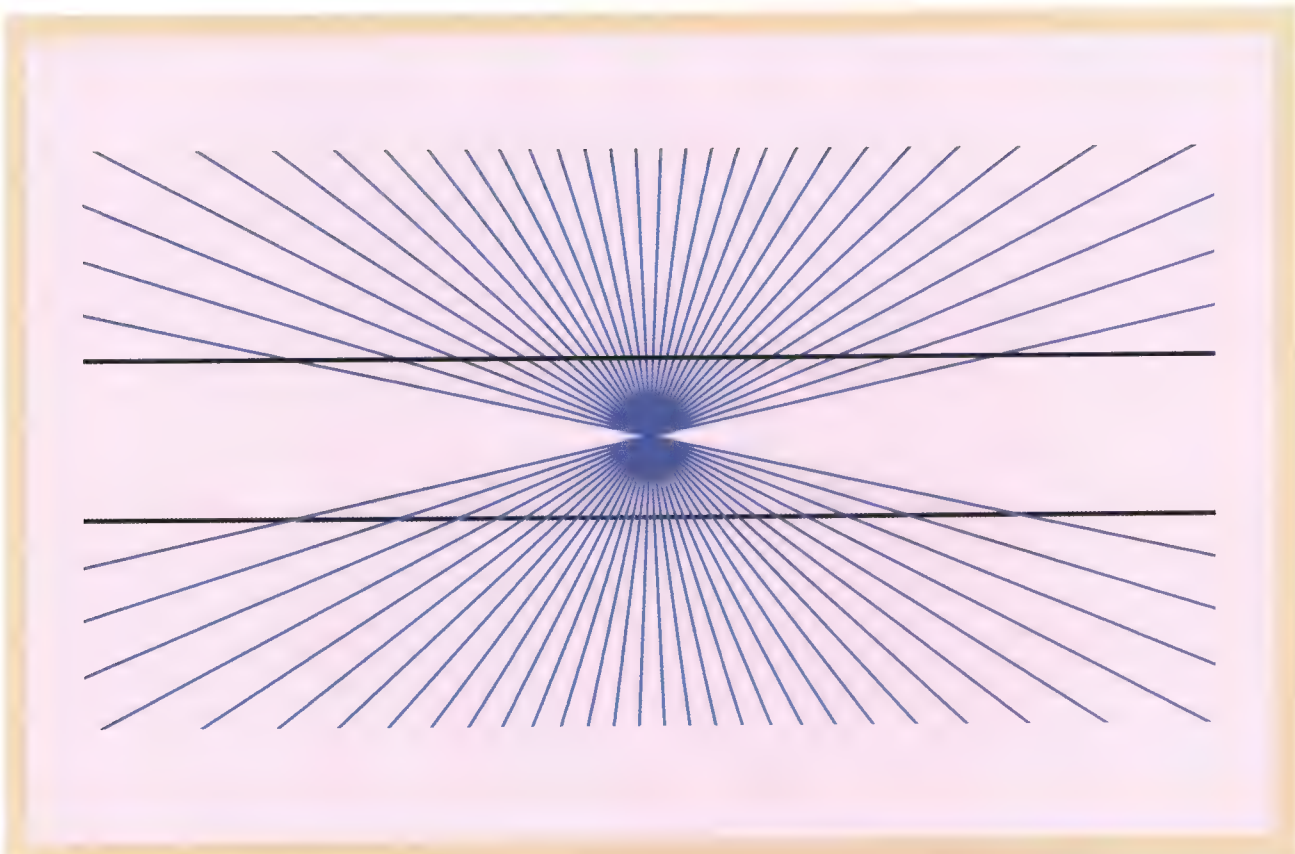
Do all the angles appear to be the same? Check your answer.

Boli of Bugs



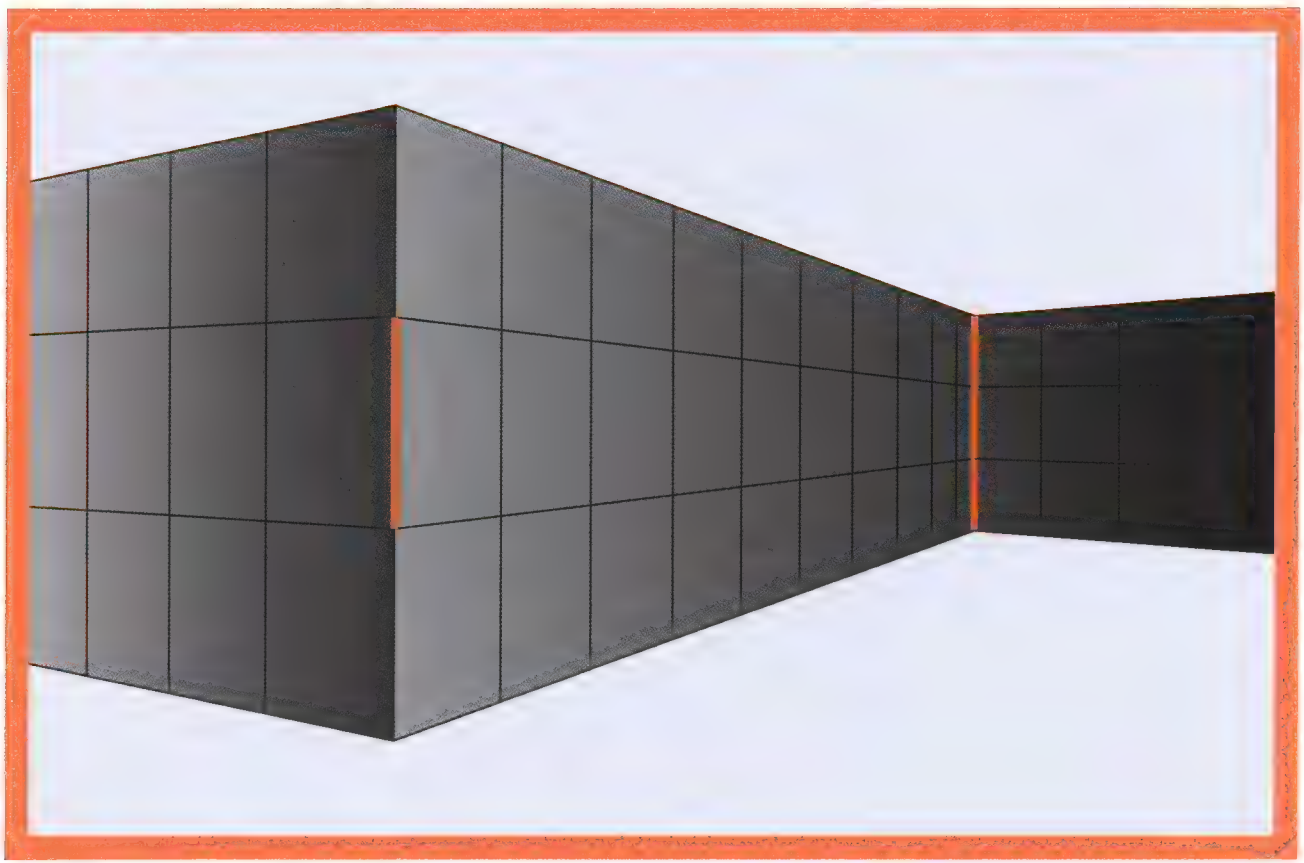
All the lines are straight and parallel.

The Hering Figure



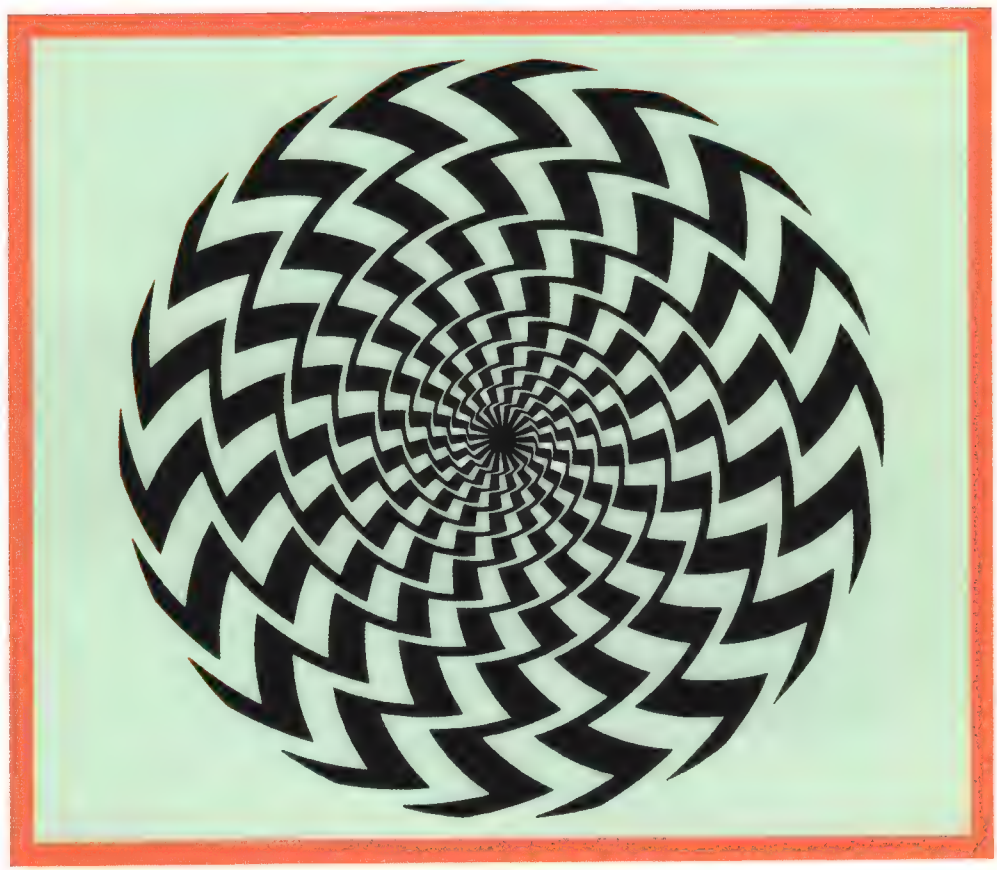
Do these lines appear to bend in the middle?
Check your answer with a straightedge.

Müller-Lyer in Perspective



Although the two red lines appear to be different in length, they are identical.

Wade's Spiral

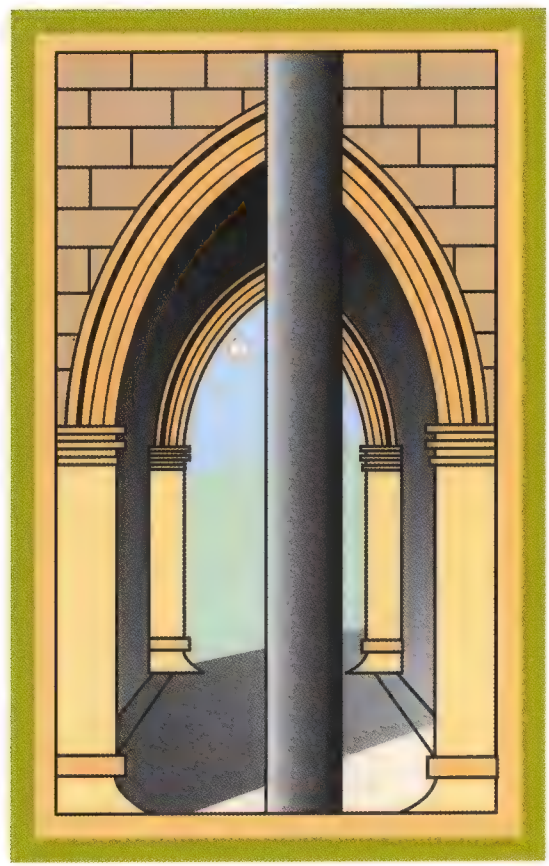


Do you perceive a spiral? It is really just concentric circles.

Off the Wall

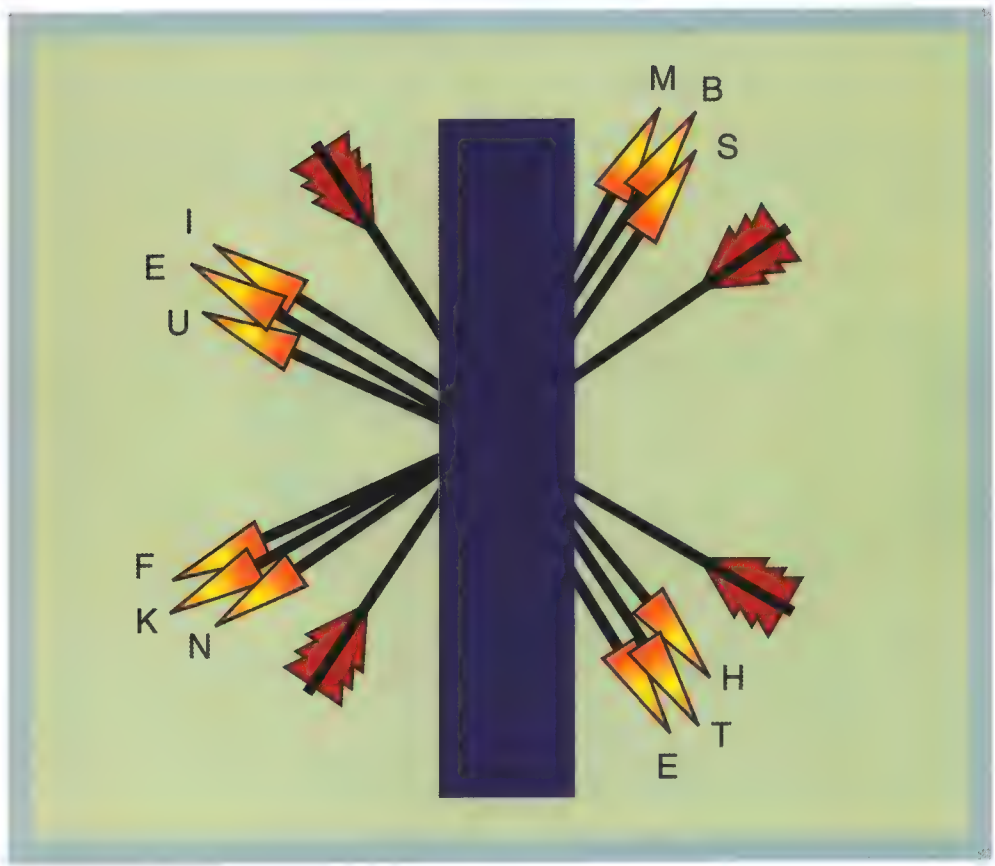
This woman appears to be hanging off the wall, but it is really the house that is slanted, not her.

Poggendorf Illusion



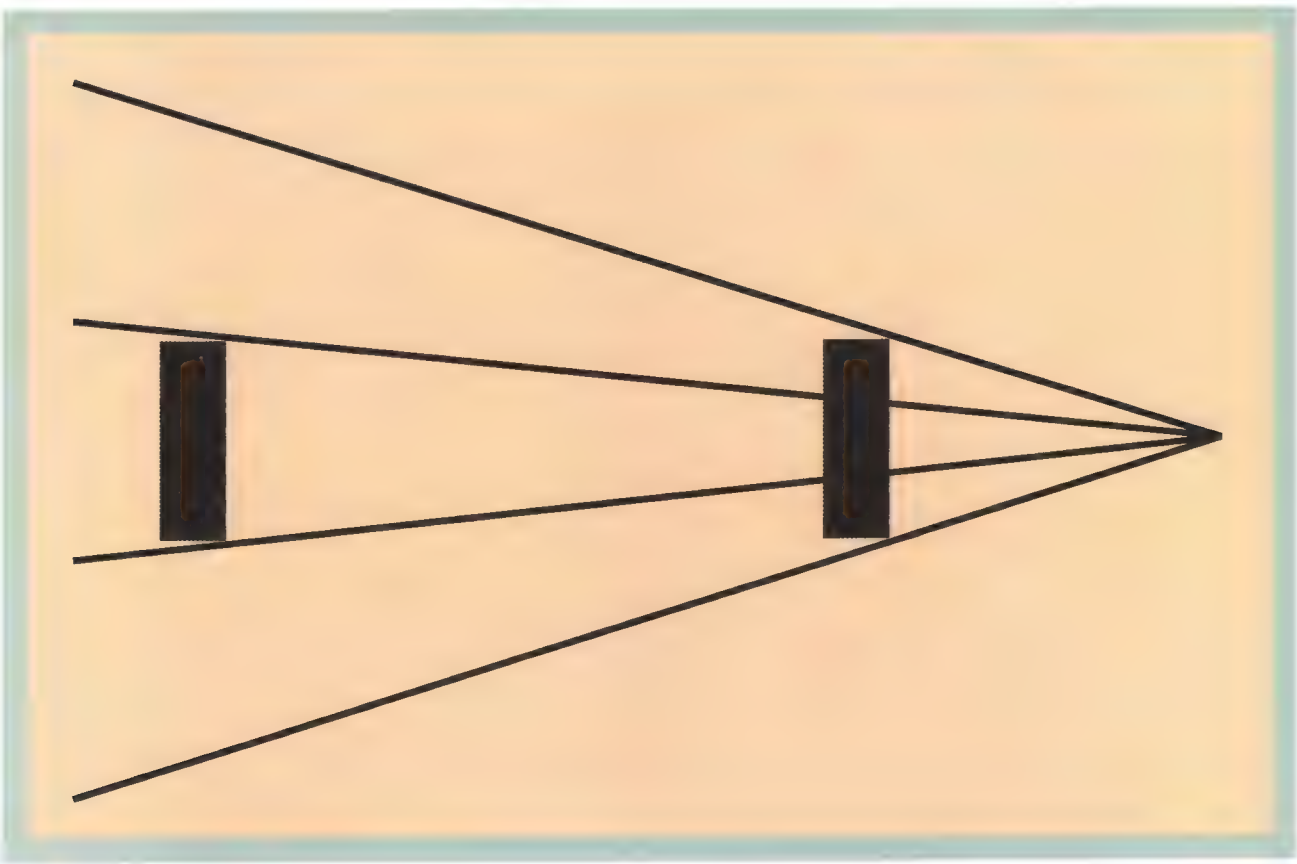
Does the arch behind the pillar appear to be misaligned?

Poggendorf Puzzle



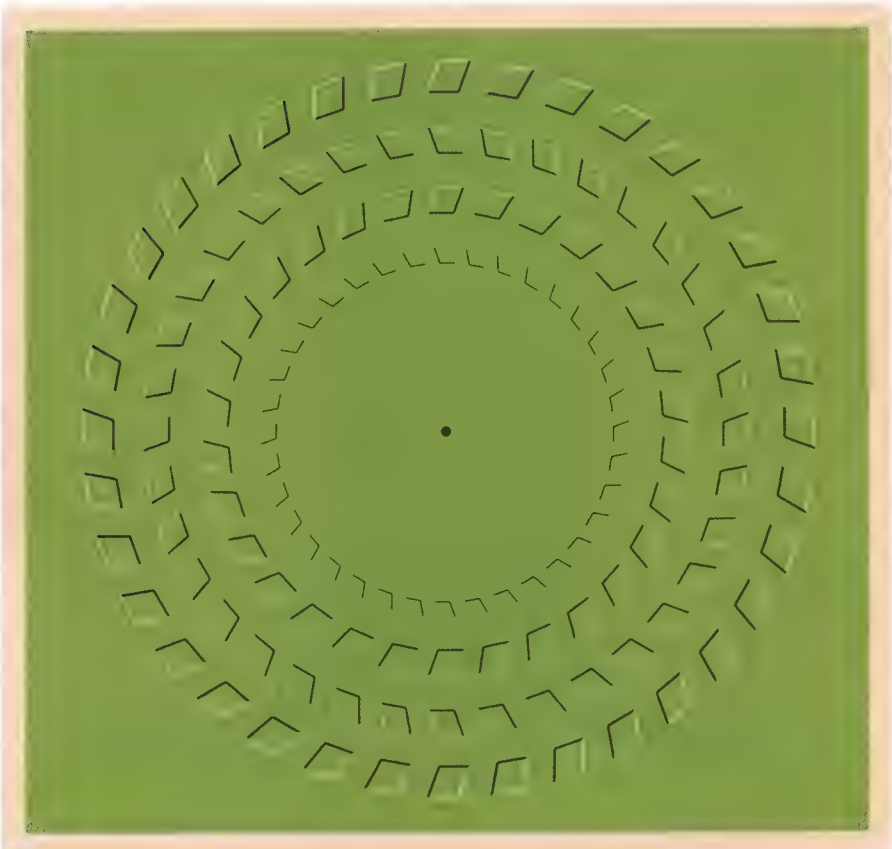
Connect the right arrows with the right fins and it will spell a word. (Counterclockwise from the upper right.)

The Ponzo Illusion



Does one bar appear larger than the other?
Check your answer.

Pinna's Revolving Circle Illusion



Move this image slowly towards your face and away from it.
The circles should counter rotate.

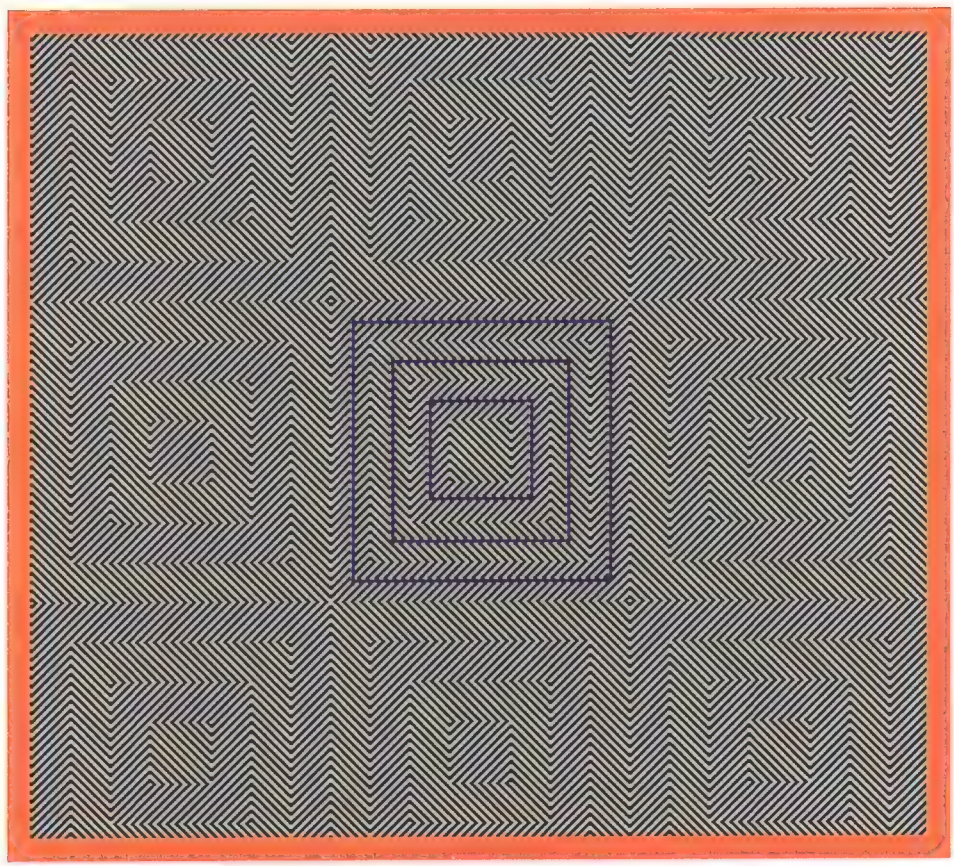
The Top Hat Illusion

Which is longer the base of the hat or the length of the hat from top to bottom? Check your answer with a ruler.

Tilted Houses

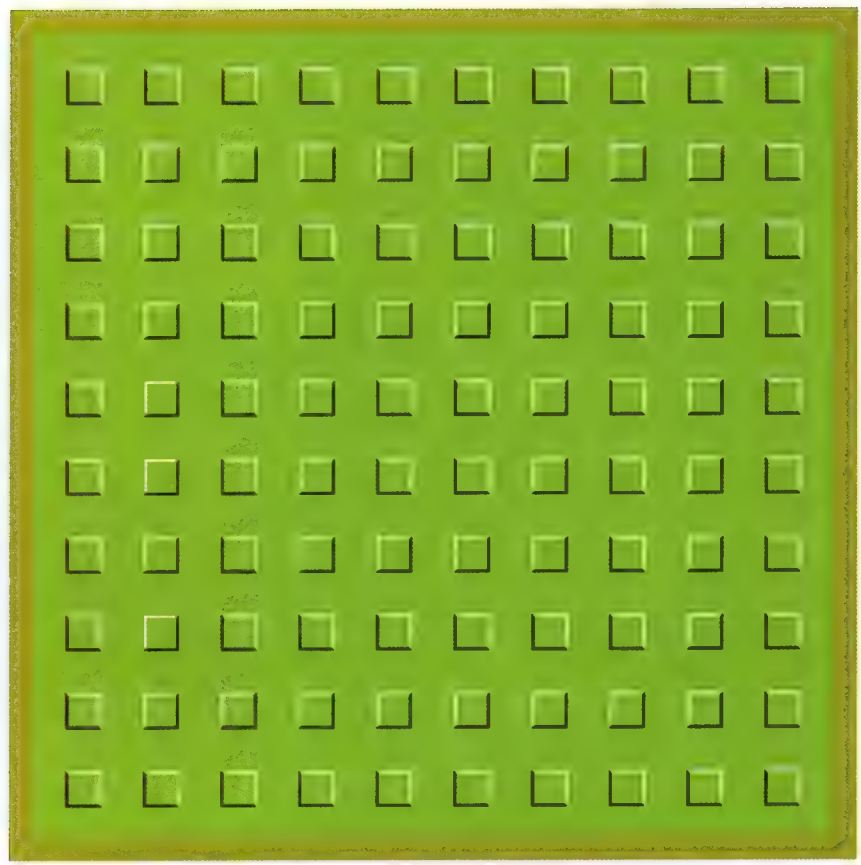
These houses appear to be tilted, but it is really the street that is tilted.

Twist on a Square of Three



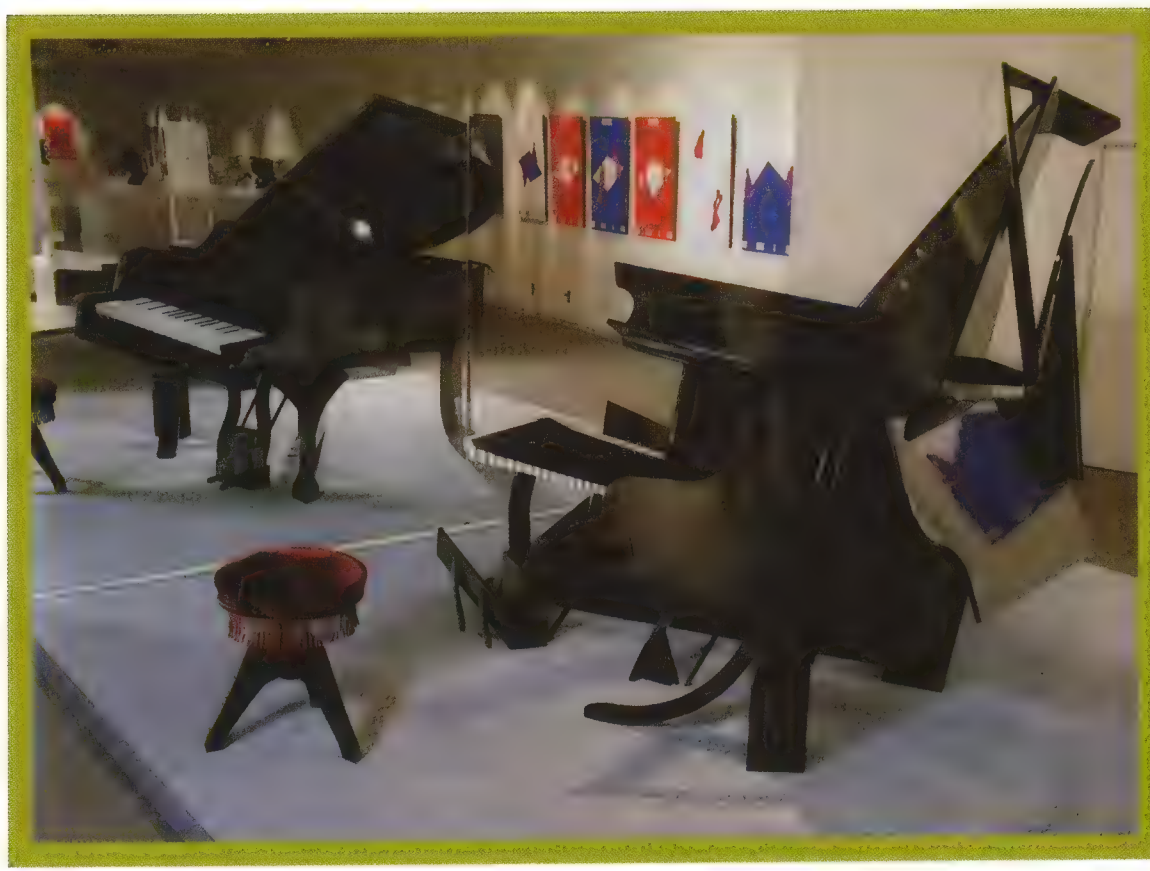
Do the blue squares appear distorted? Check your answer.
Try jiggling the image for another cool effect.

Deforming Squares



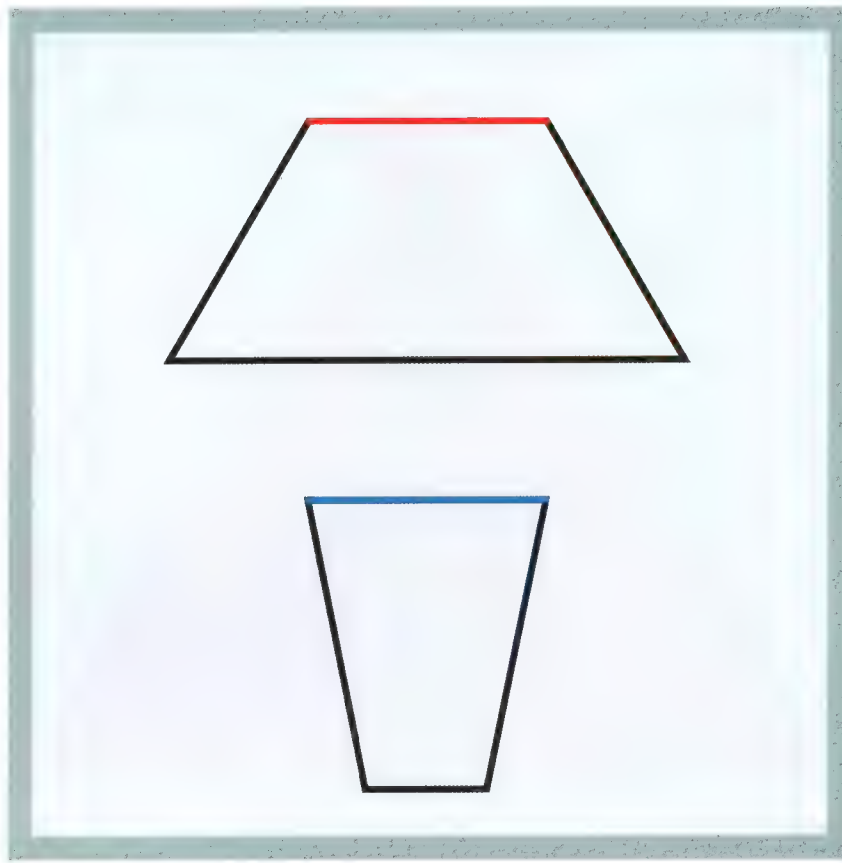
Move this image slightly and the squares will appear to deform.

Fukuda's Distorted Piano



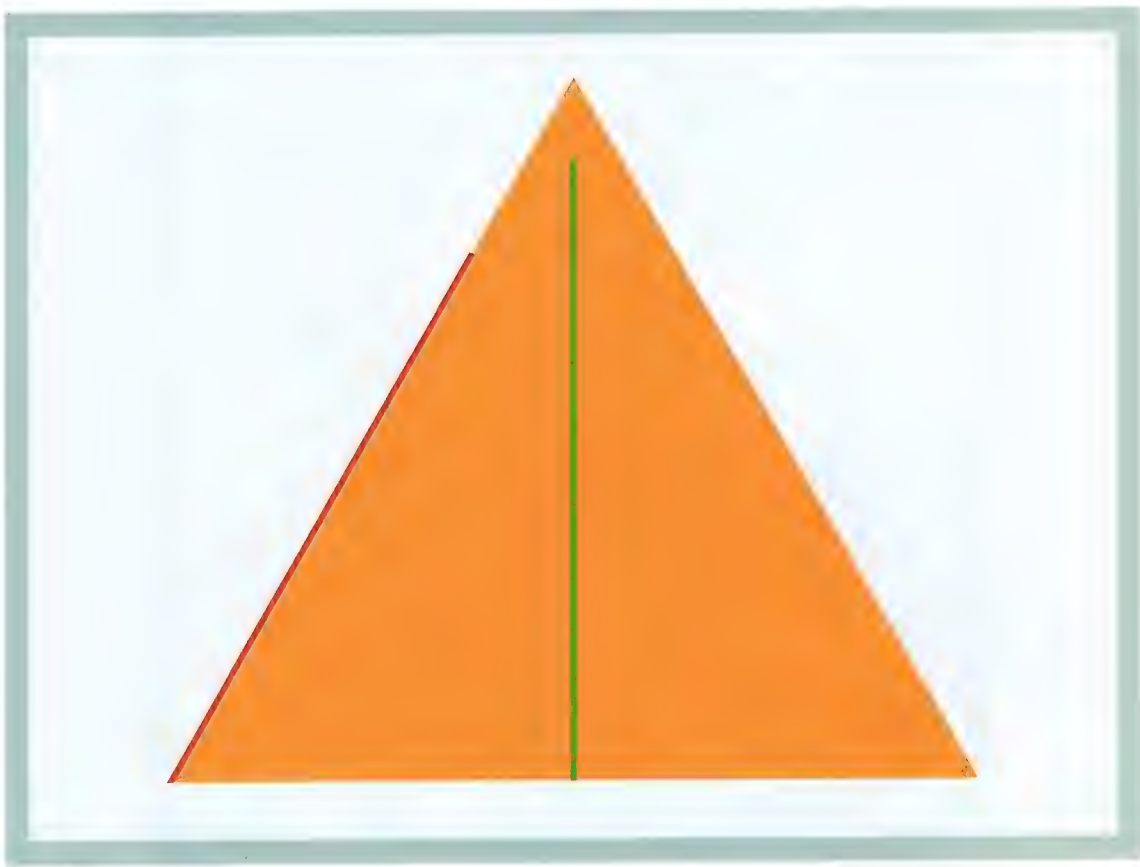
The mass of unrecognizable parts on the right casts a perfect reflection of a piano in the mirror on the left.

Trapezoid Illusion



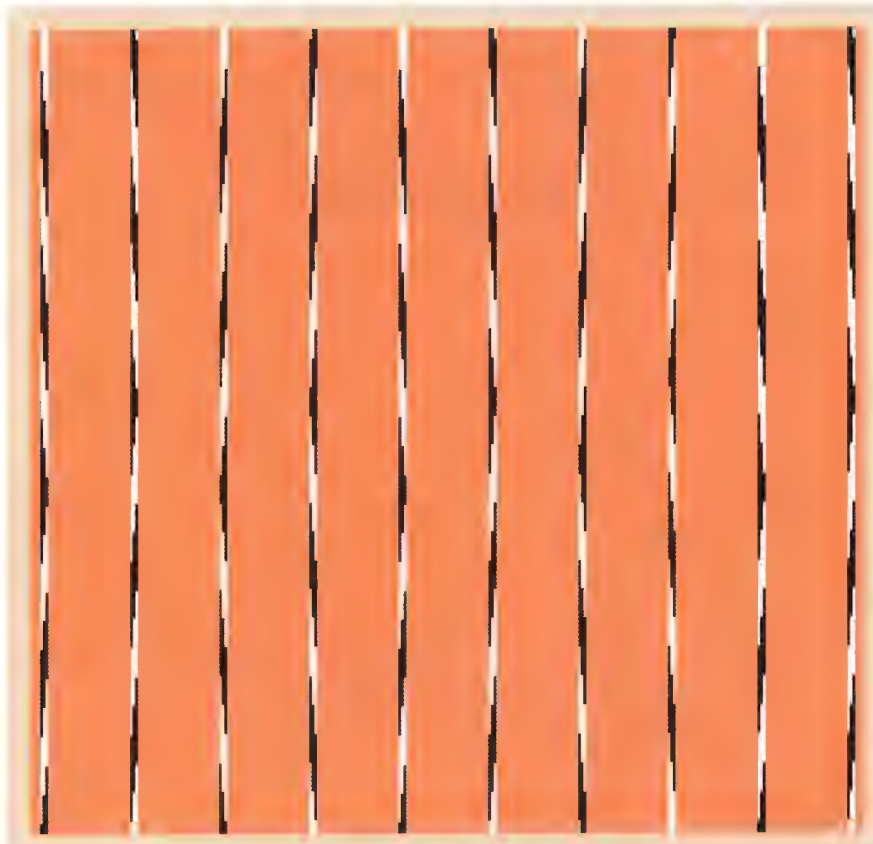
Which line segment is longer? The blue one or the red one?
Check your answer.

An Illusion of Extent



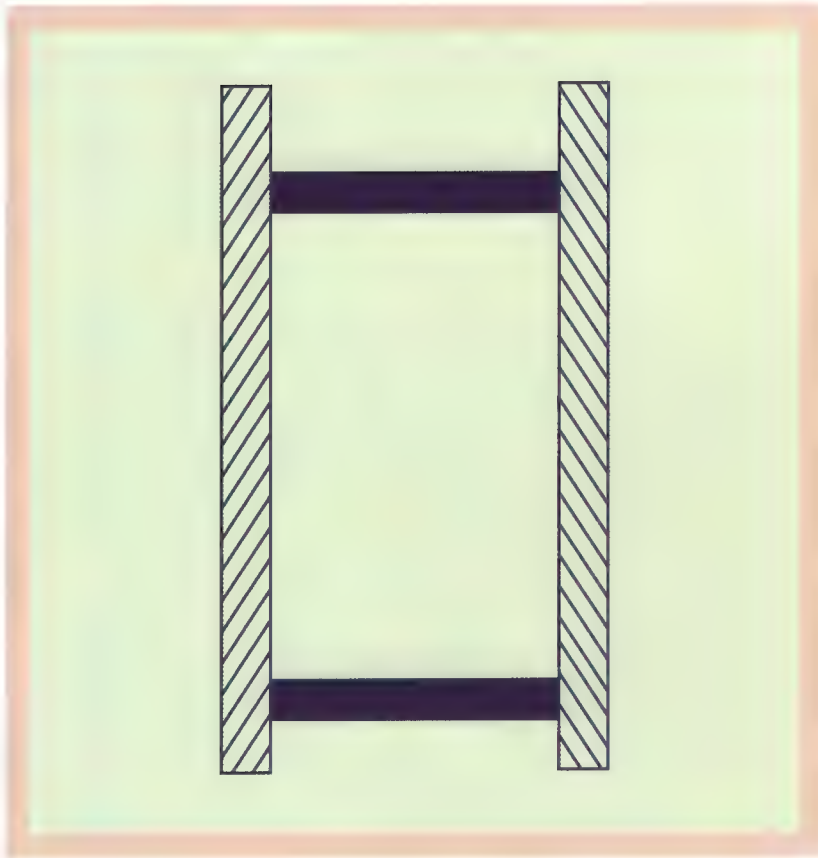
Which line segment is longer? The red one or the green one?
Check your answer.

The Twisted Cord Illusion



Do the vertical lines appear to be bent?
Check your answer with a straightedge.

The Striped Bars Illusion

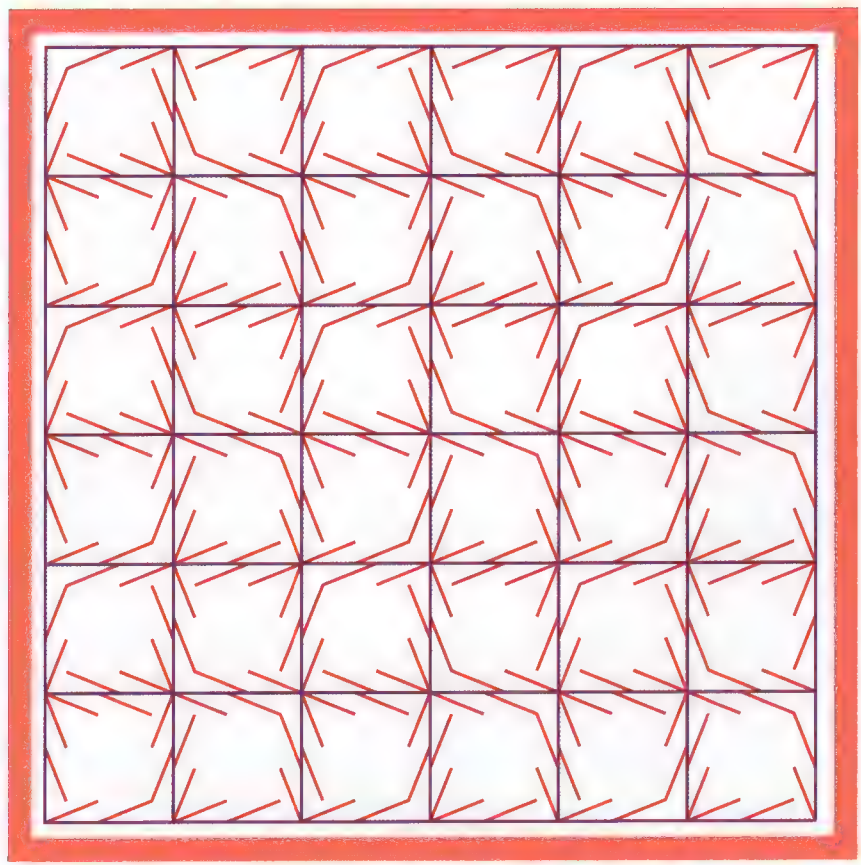


Do the striped bars appear to be leaning outward?

The St. Louis Arch Illusion

The St. Louis Arch is a famous national monument that is also an illusion. It is as tall as it is wide, even though it appears taller than it is wide.

Kozall



Are the vertical and horizontal lines straight and parallel?

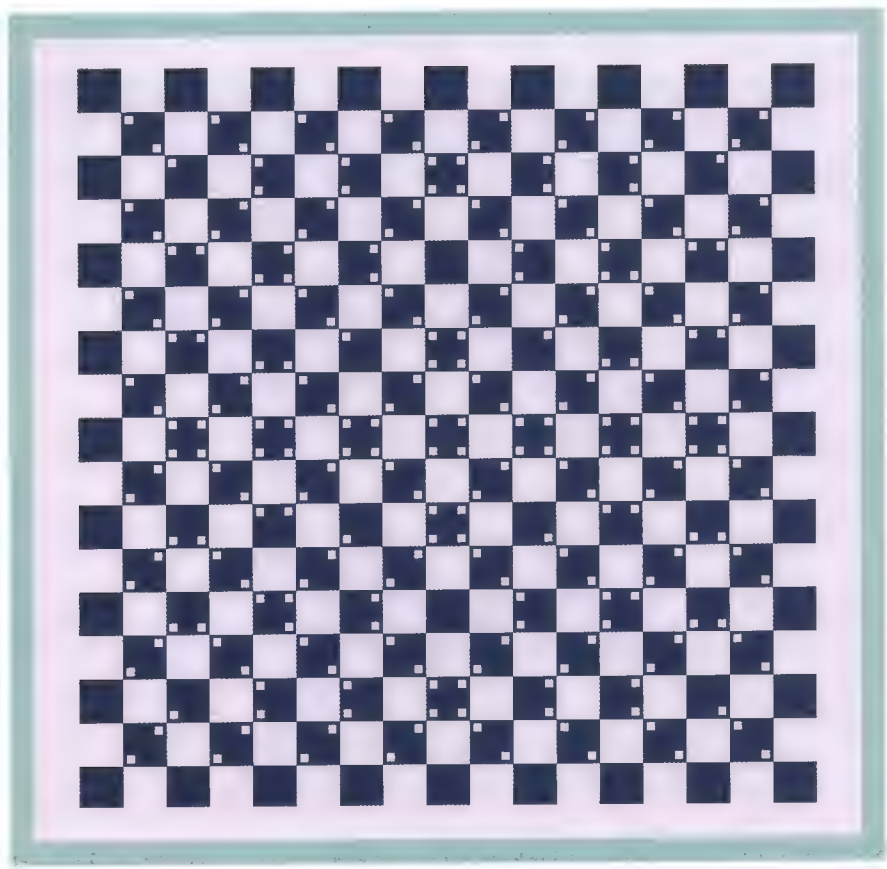
Wundt Blocks Illusion

Which colored block is larger? Or are they the same size?

The Zöllner Illusion

Do the black and yellow lines appear to bend?

Waves

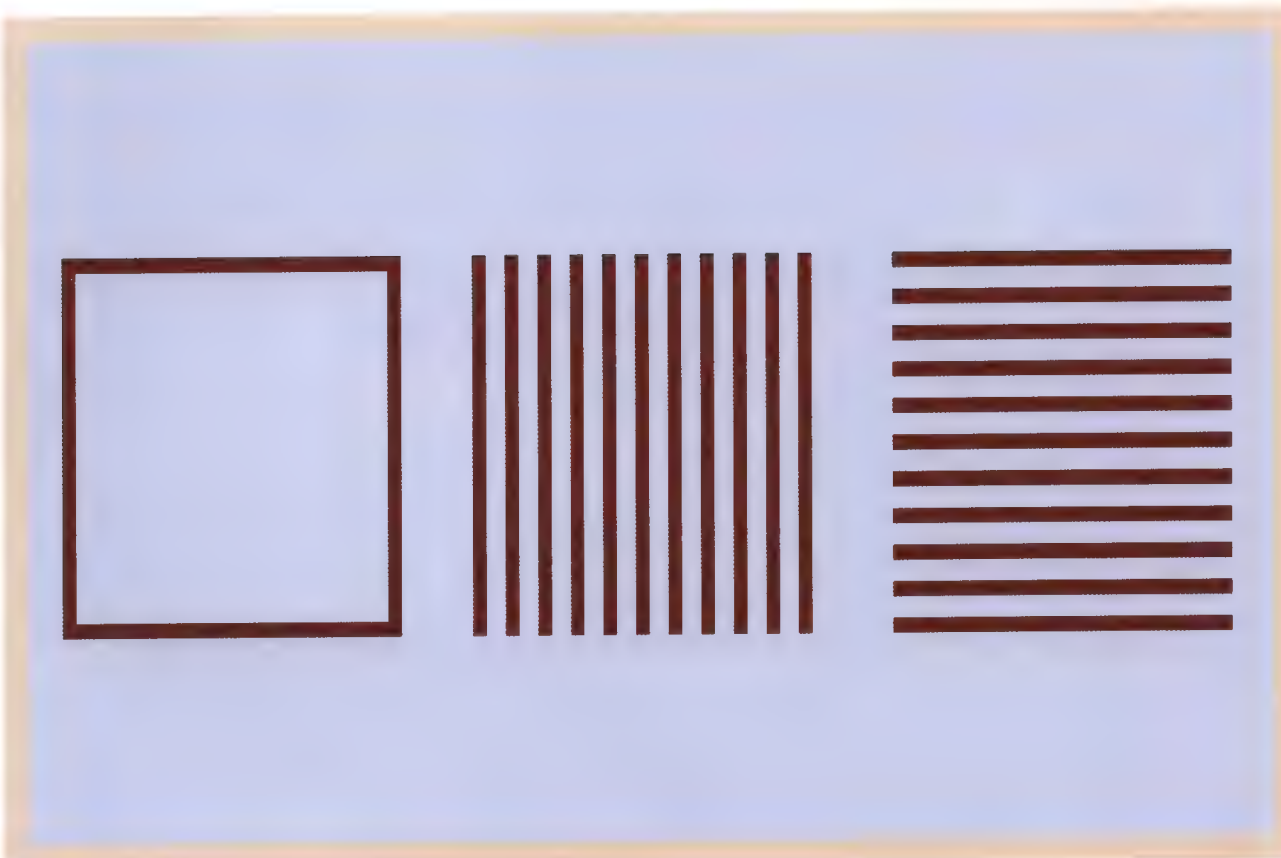


Are the lines really straight? Check your answer with a straightedge.

Illusory Sphere

Do you perceive a sphere even though there are no edges to define it?

The Opel-Kundt Illusion

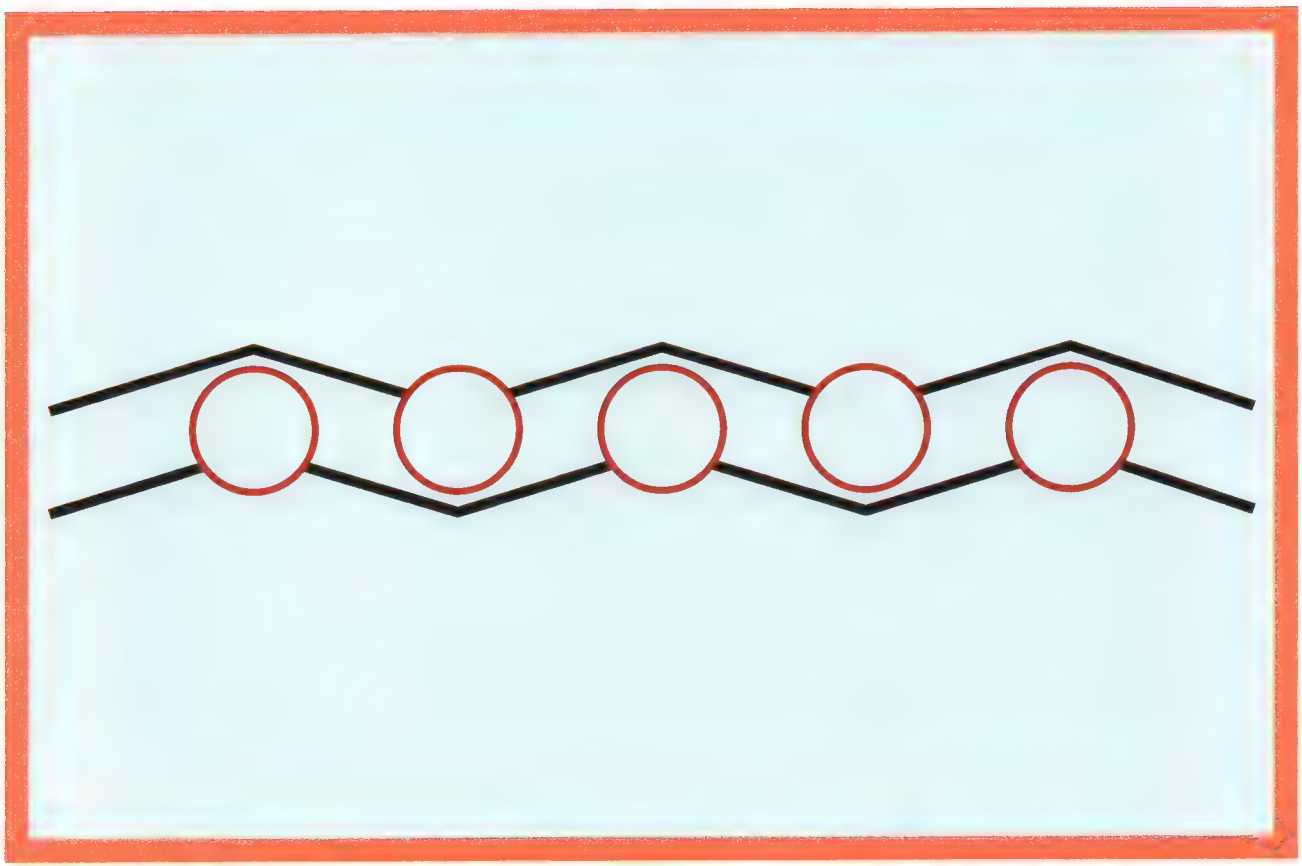


Do all three squares appear equal in size? Check your answer.

Crazy Street

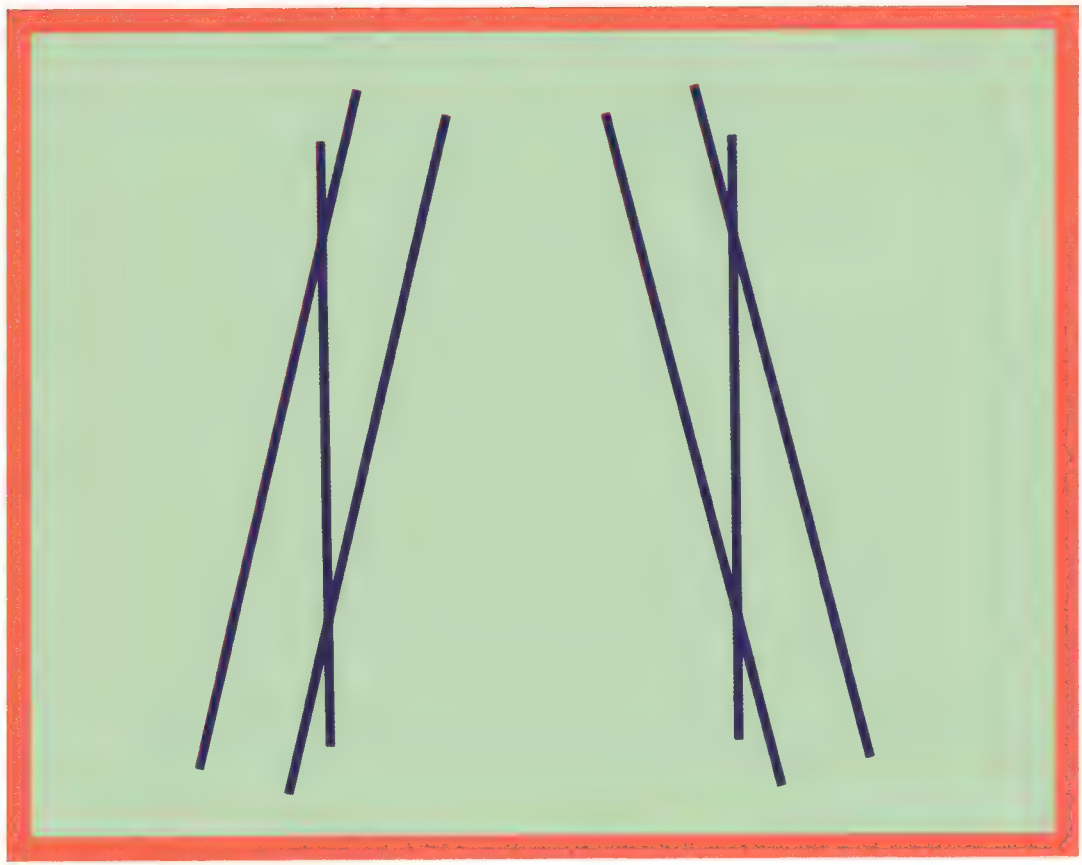
These people appear to be leaning, but it is the background that is sloping not the people.

Misalignment of Balls



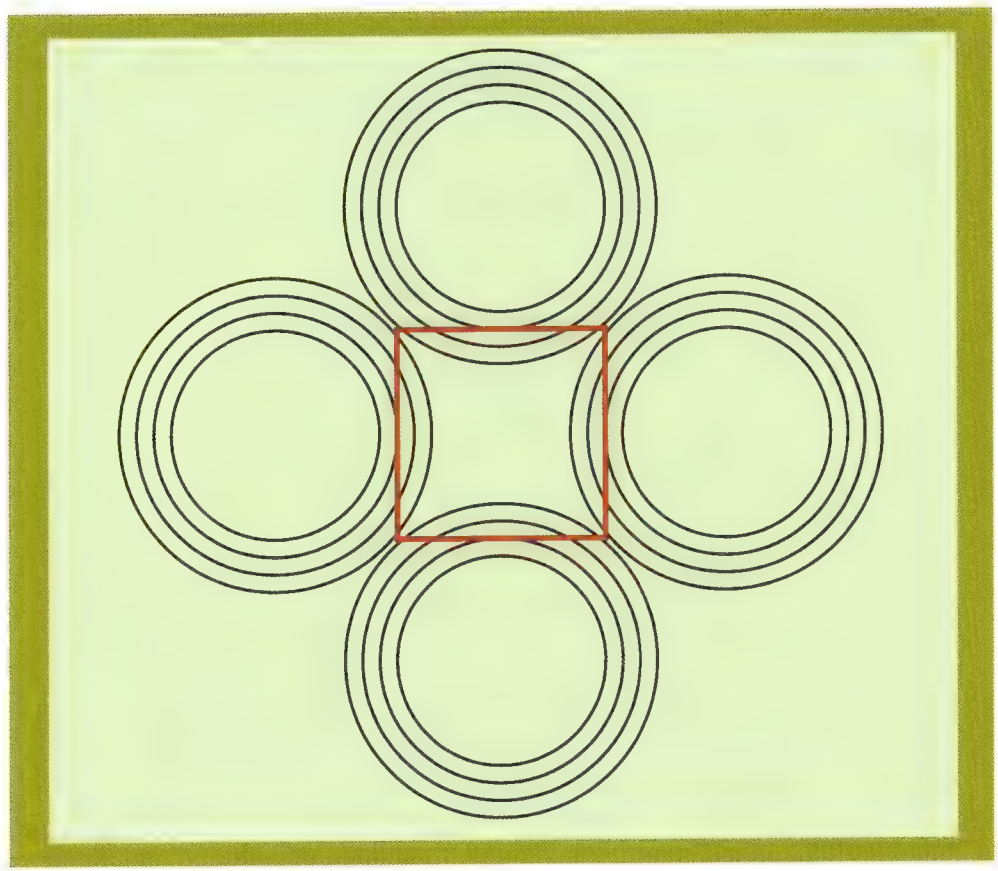
Do the balls appear to be misaligned? Check your answer with a ruler.

The Tilt Induction Effect



Do the two vertical lines appear to be slanting away from each other? Check your answer with a ruler.

Distorted Square

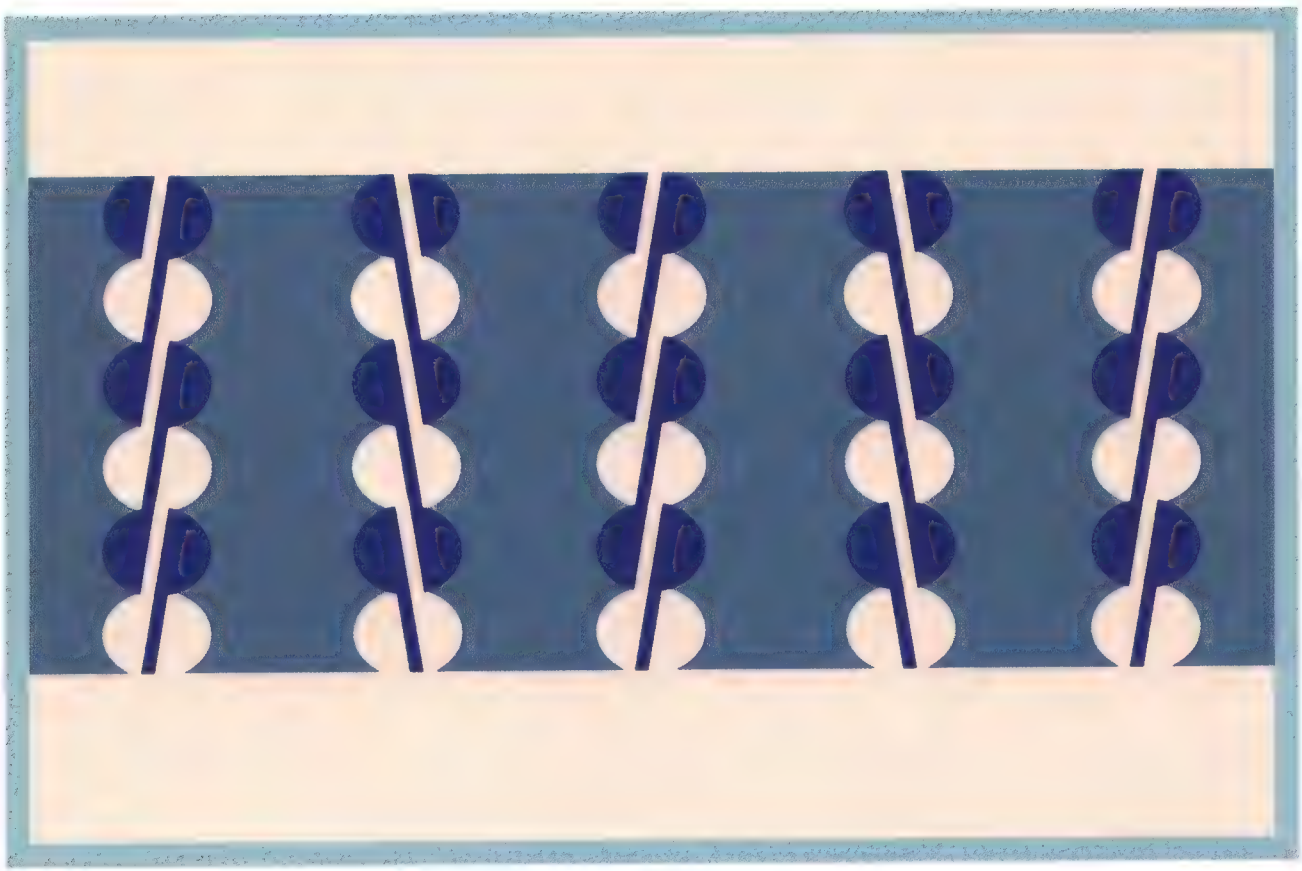


Is this a perfect square? Check your answer.

Blakemore's Tilt Illusion

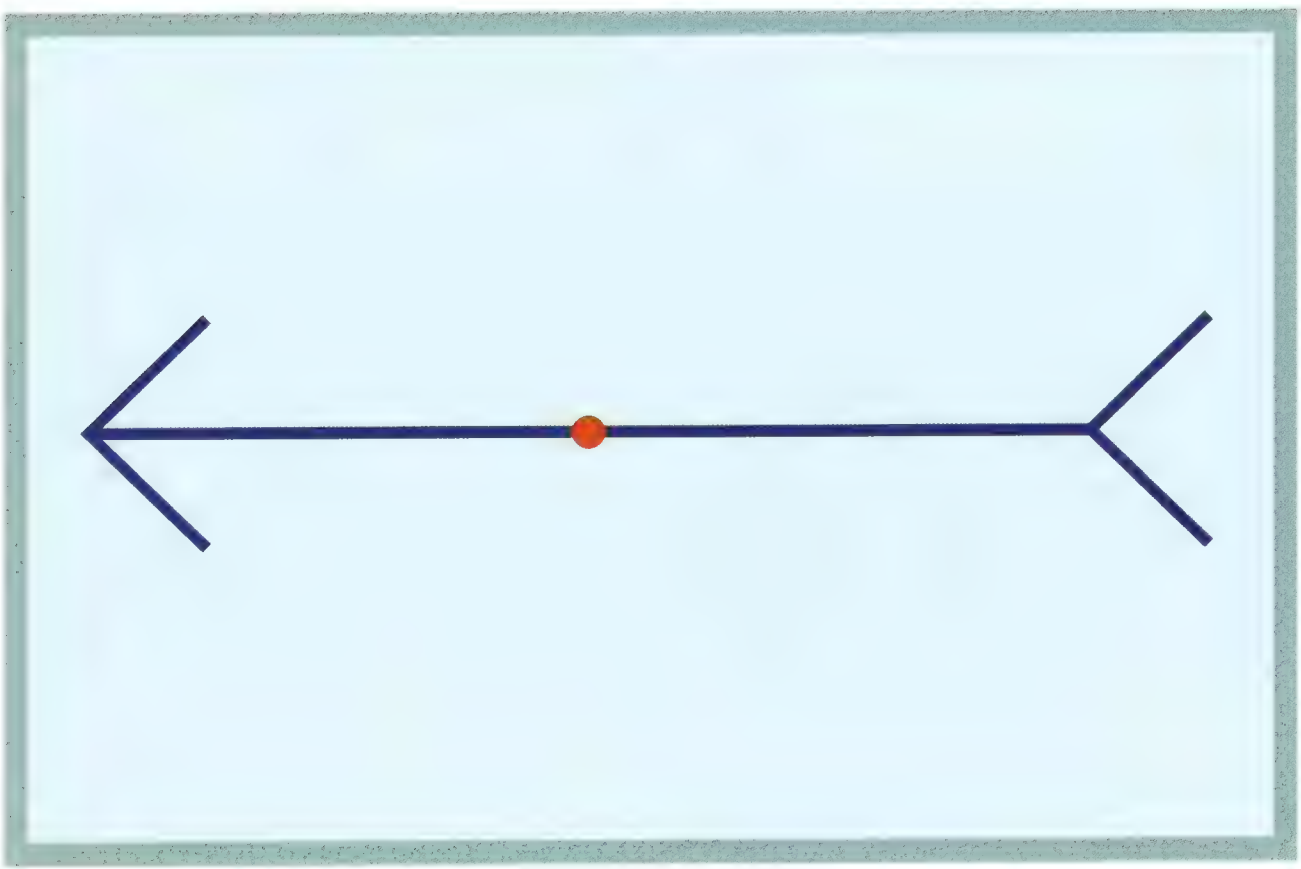
Do the red line segments appear to be tilted?
Check your answer.

Dango



Do the vertical line segments appear to be tilted? Check your answer.

The Judd Illusion

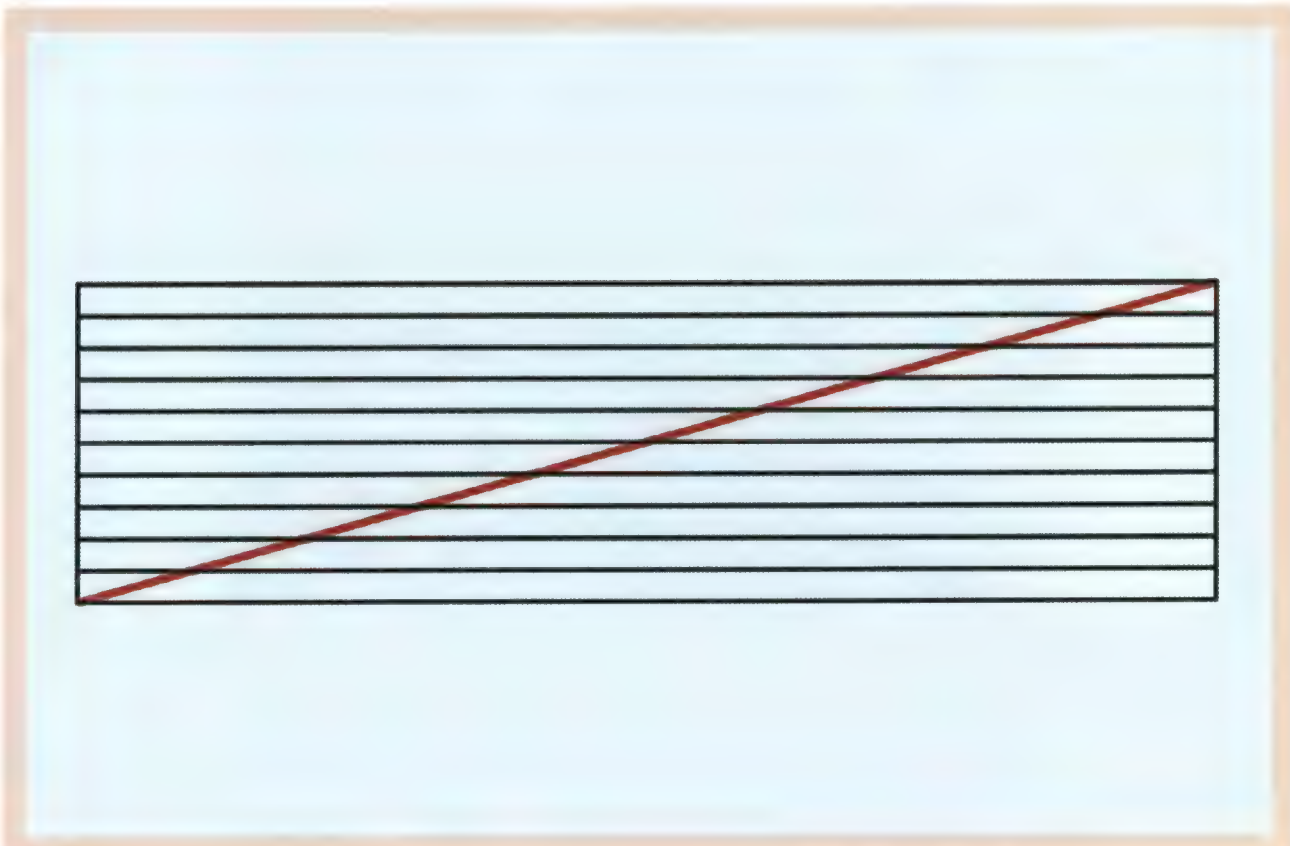


Does the red dot appear to be in the middle of the arrow?
Check your answer with a ruler.

Wilcox's Twisted Circle Illusion

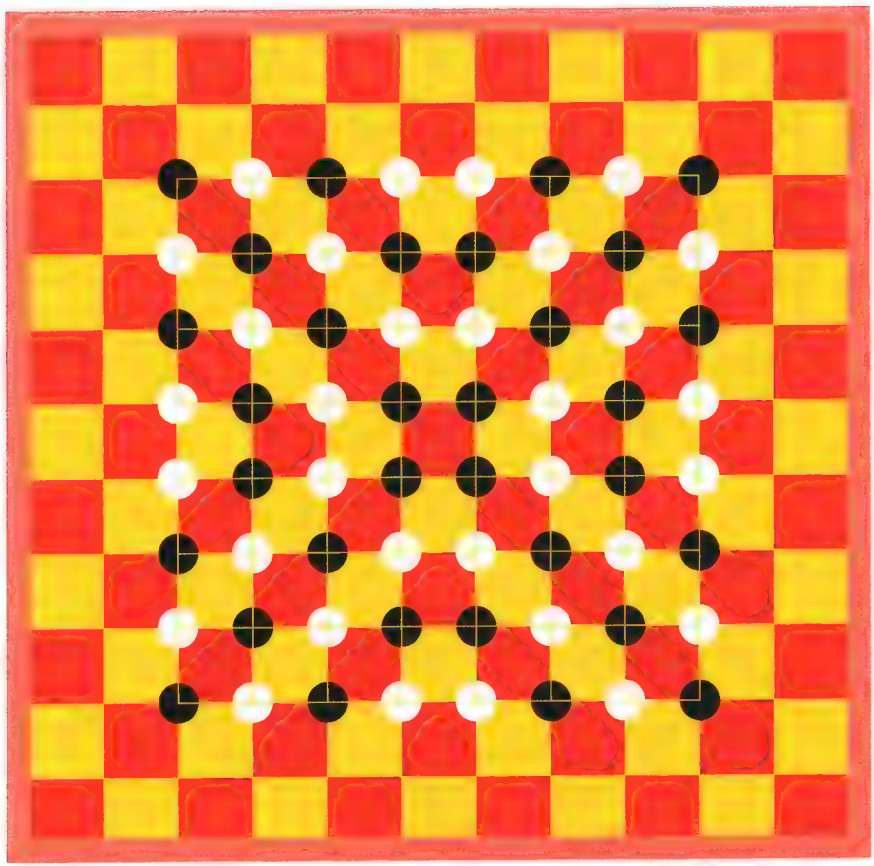
Do you perceive a series of warped circles? They are all perfect circles! Check this.

The Jagged Line Illusion



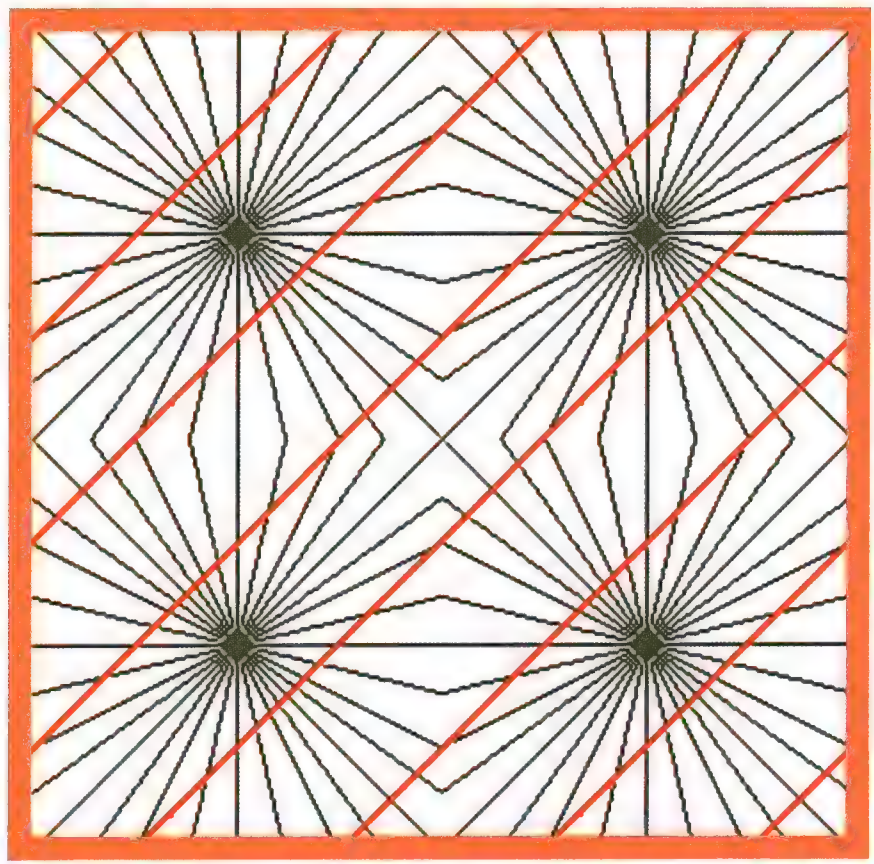
Does the red line appear jagged?
Check your answer with a straightedge.

Bulging Lines



Do the horizontal and vertical lines appear to bulge?
Check your answer with a straightedge.

Straight Lines?

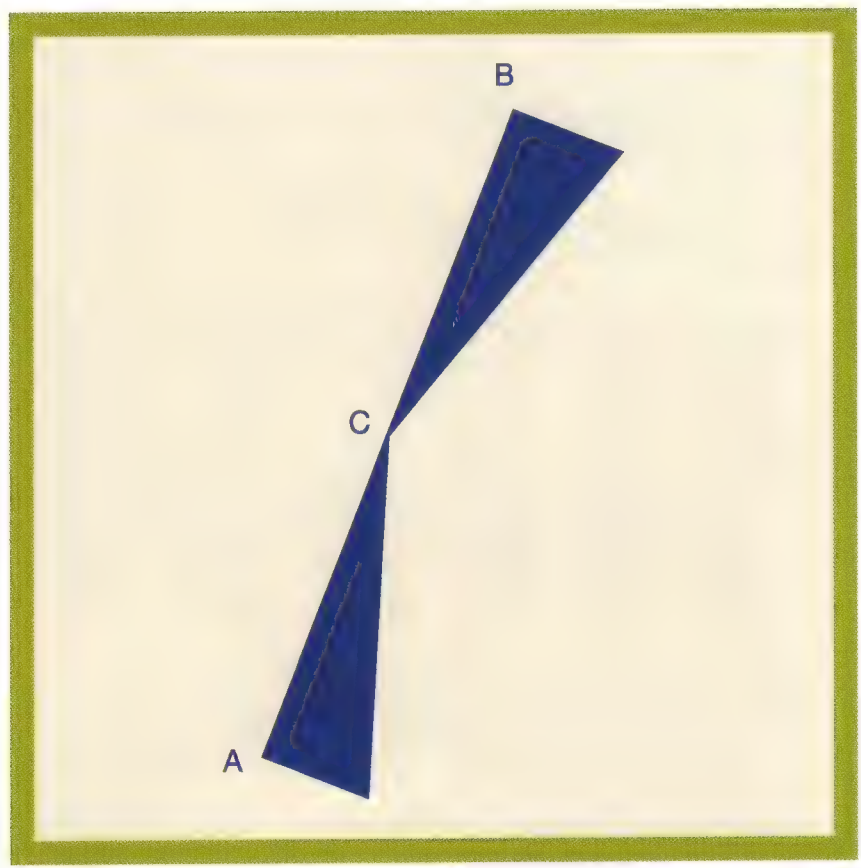


Are the red lines straight and parallel?
Check your answer with a straightedge.

The Greatest Illusion of Antiquity

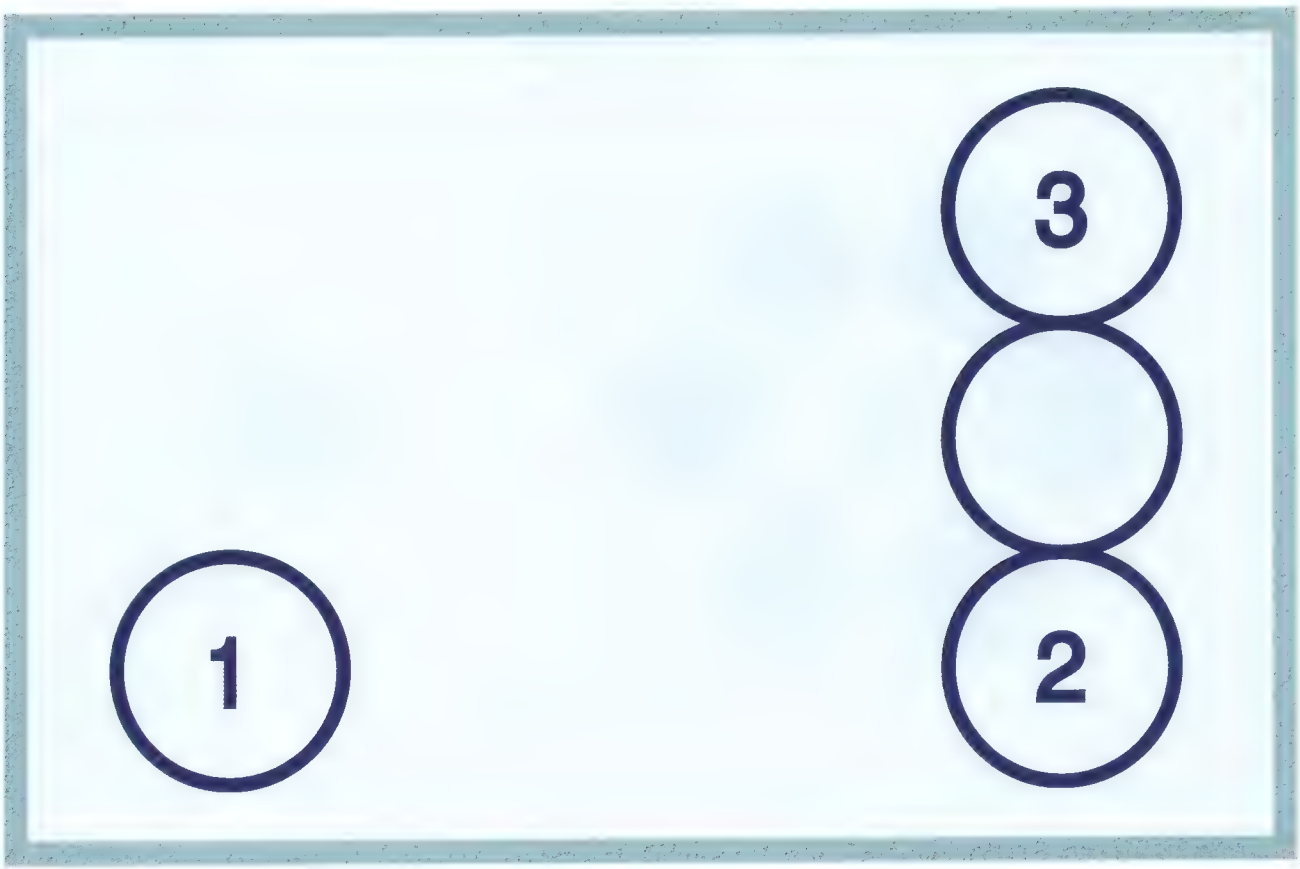
The Greek Parthenon is one of the great illusionistic buildings. All the columns appear straight and of the same thickness, but they are really bowed.

A Slight Bend



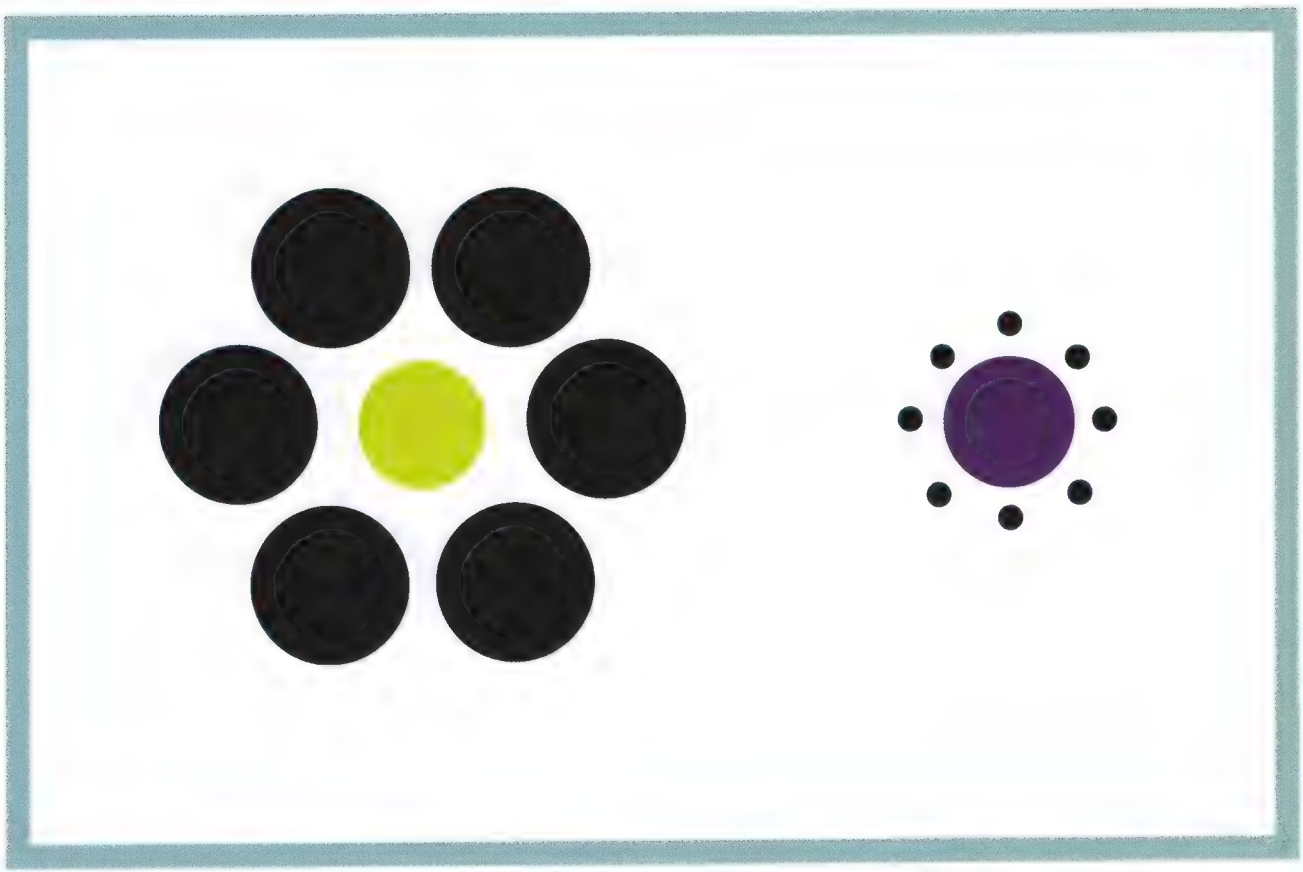
Does the line AB appear to slightly bend at C?

An Estimation Illusion



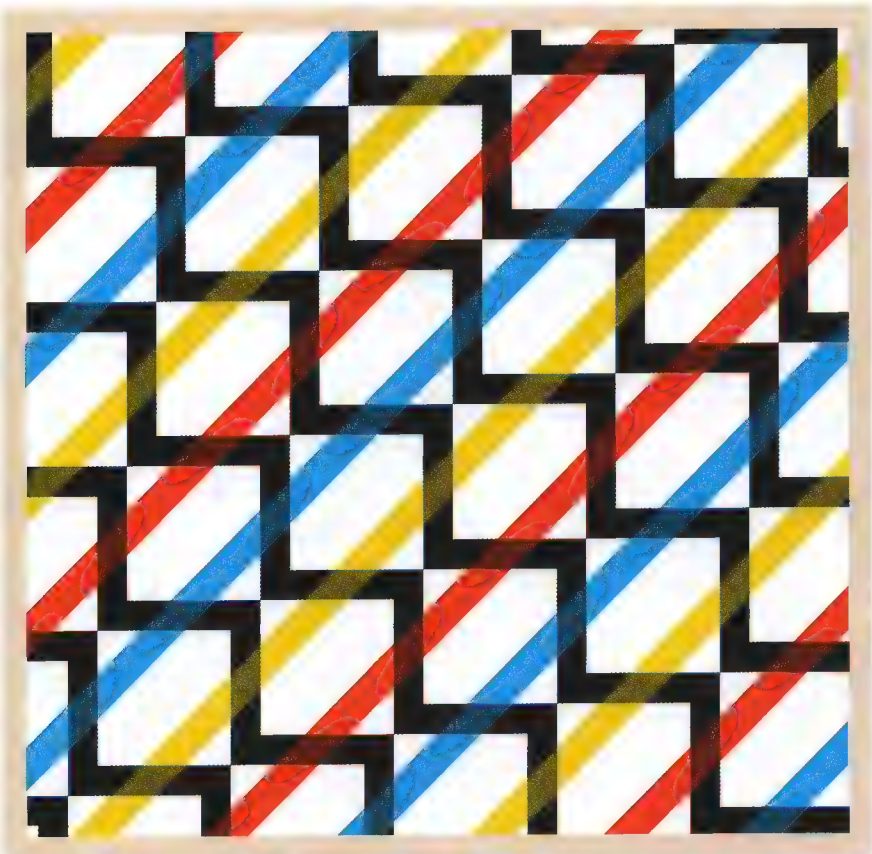
Which is the greater distance—between circle 1 and circle 2 or from the bottom of circle 2 to the top of circle 3? Check your answer with a ruler.

The Ebbinghouse Illusion



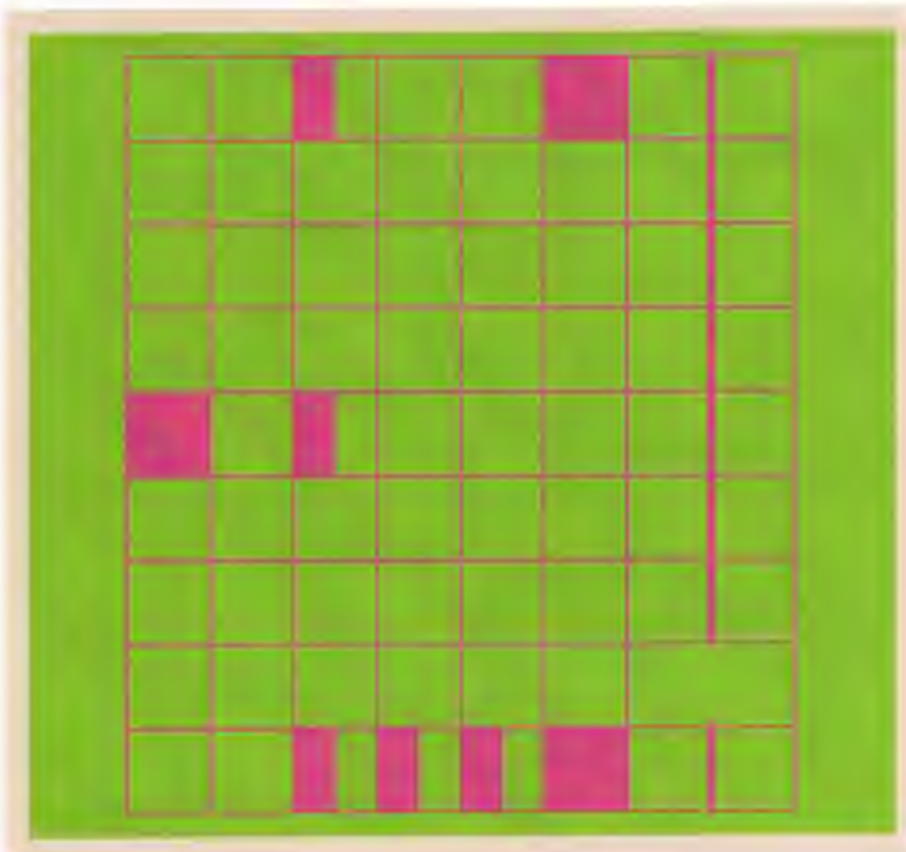
Which circle (green or purple) appears larger?
Check your answer.

Crooked Lines



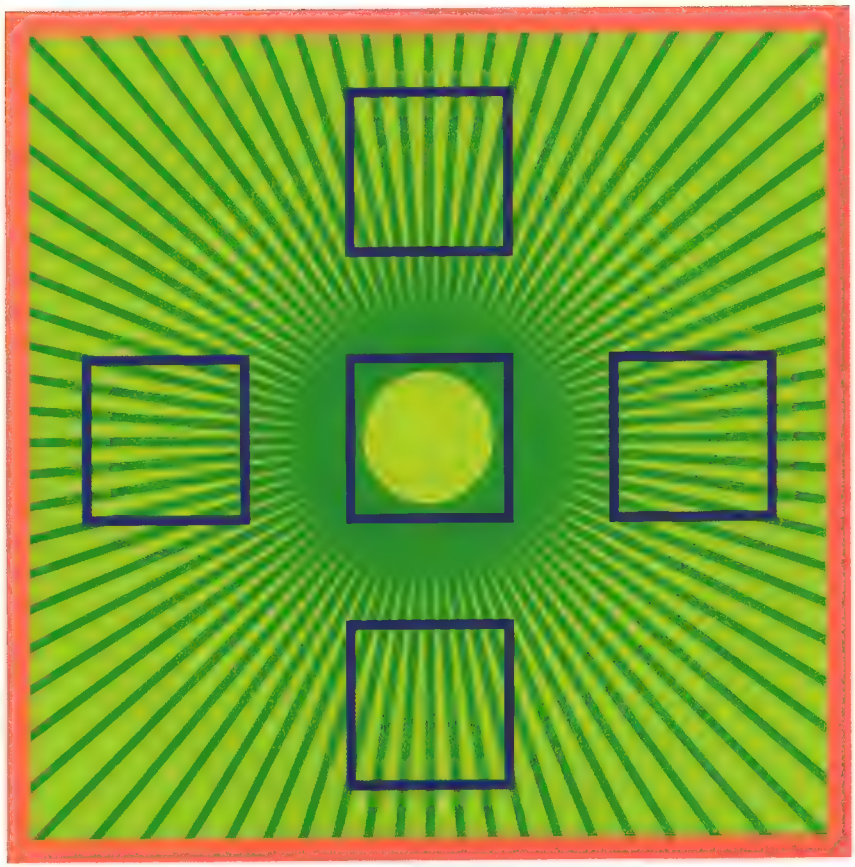
Do the edges of the colored bands appear to be wavy?
They are straight

What Does This Say?



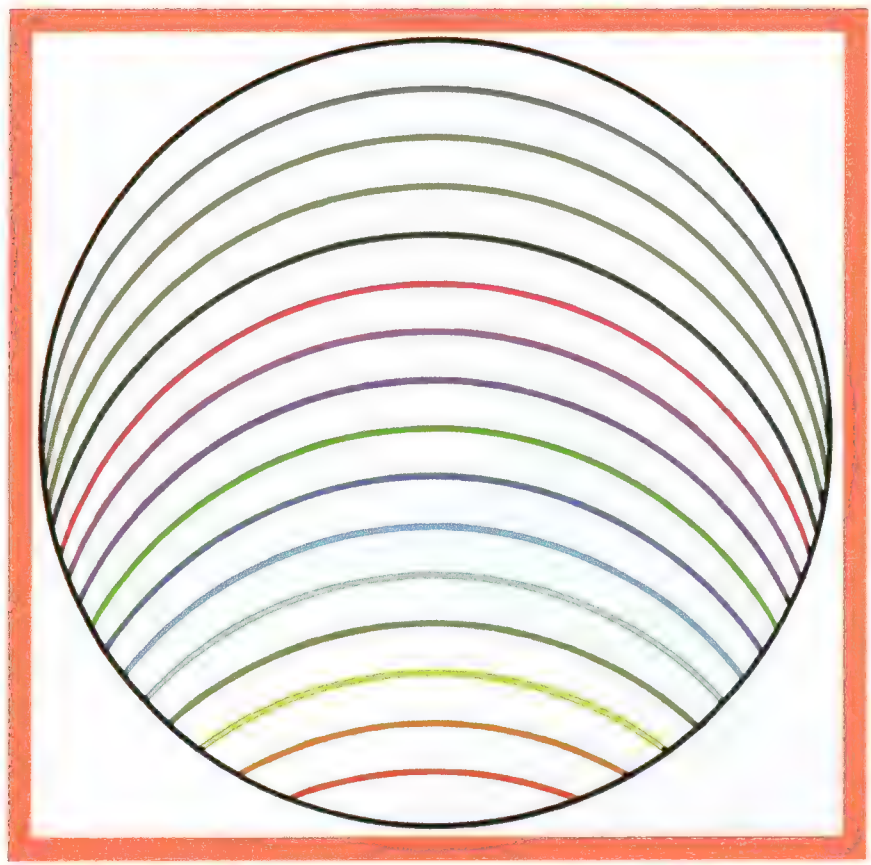
What does this say?

Distorted Square



Do these squares appear distorted?

An Estimation Illusion

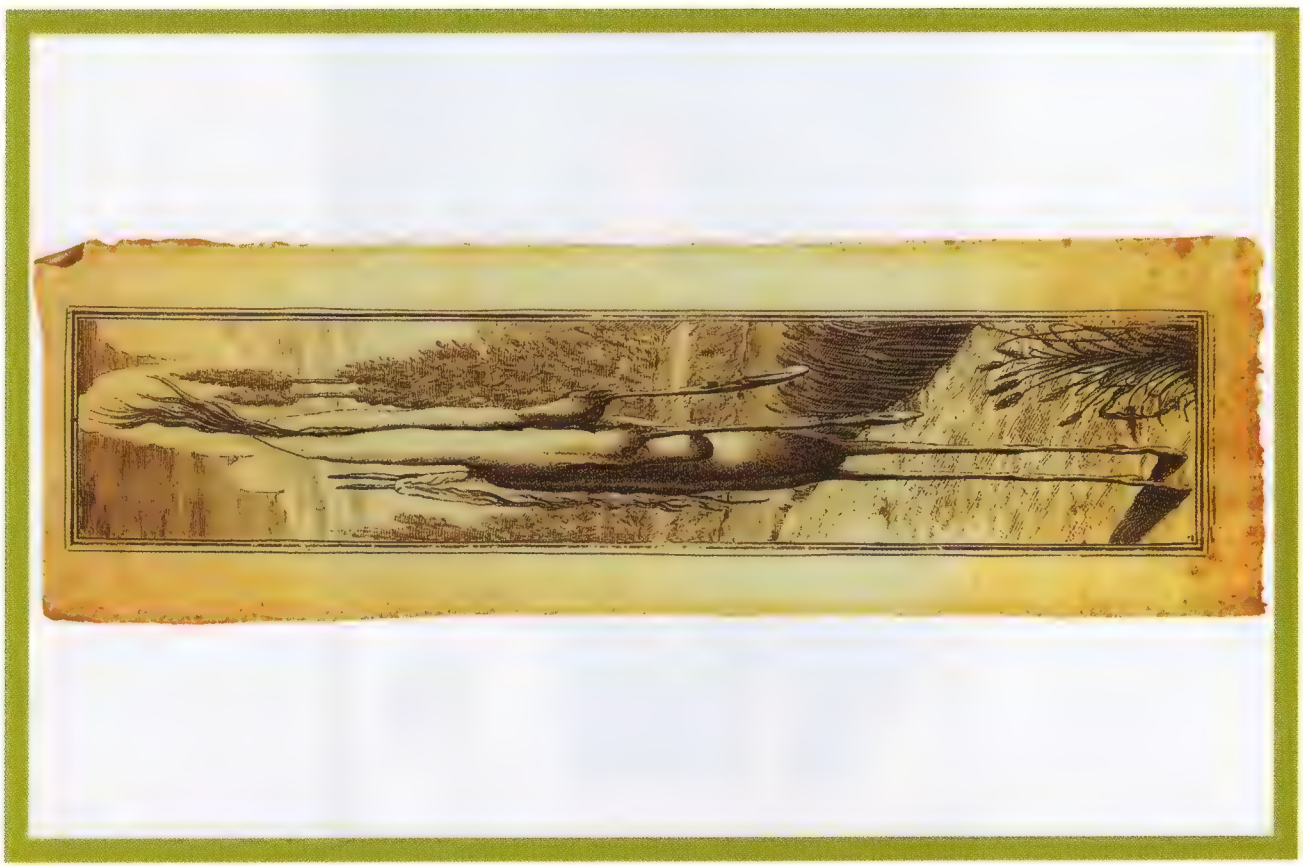


Which colored arc segment is in the exact center of the circle? Check your answer with a ruler.

Stretched Heads

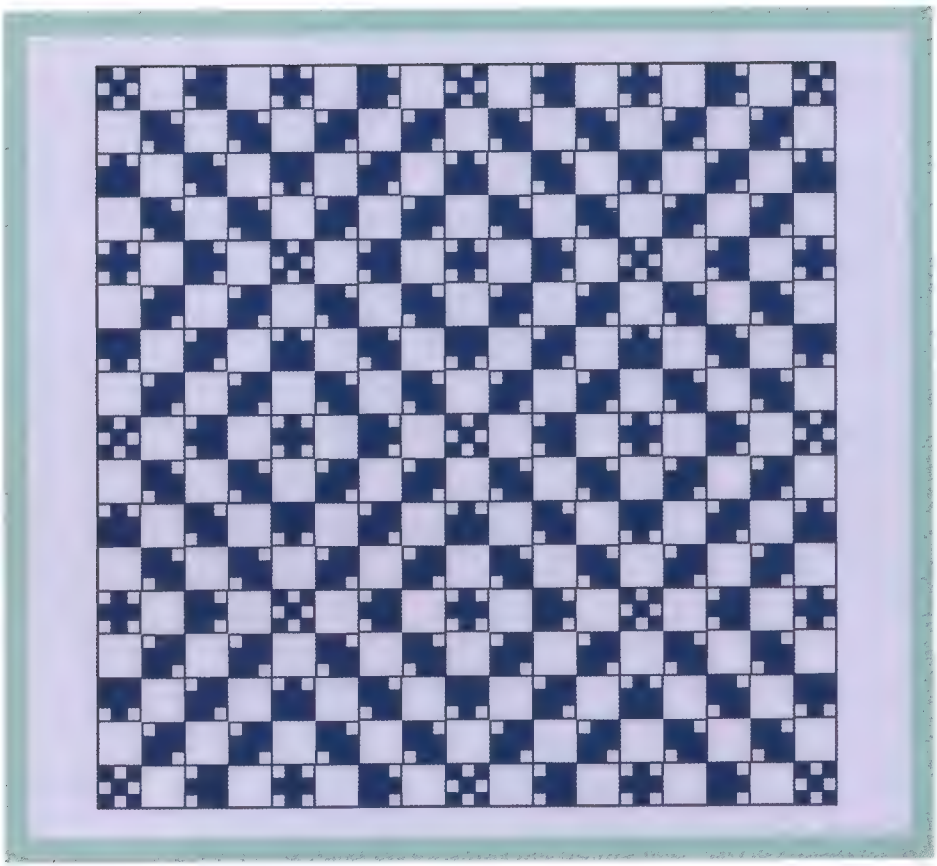
These three heads will not look distorted if you look at them the right way. See insert.

Anamorphic Horse



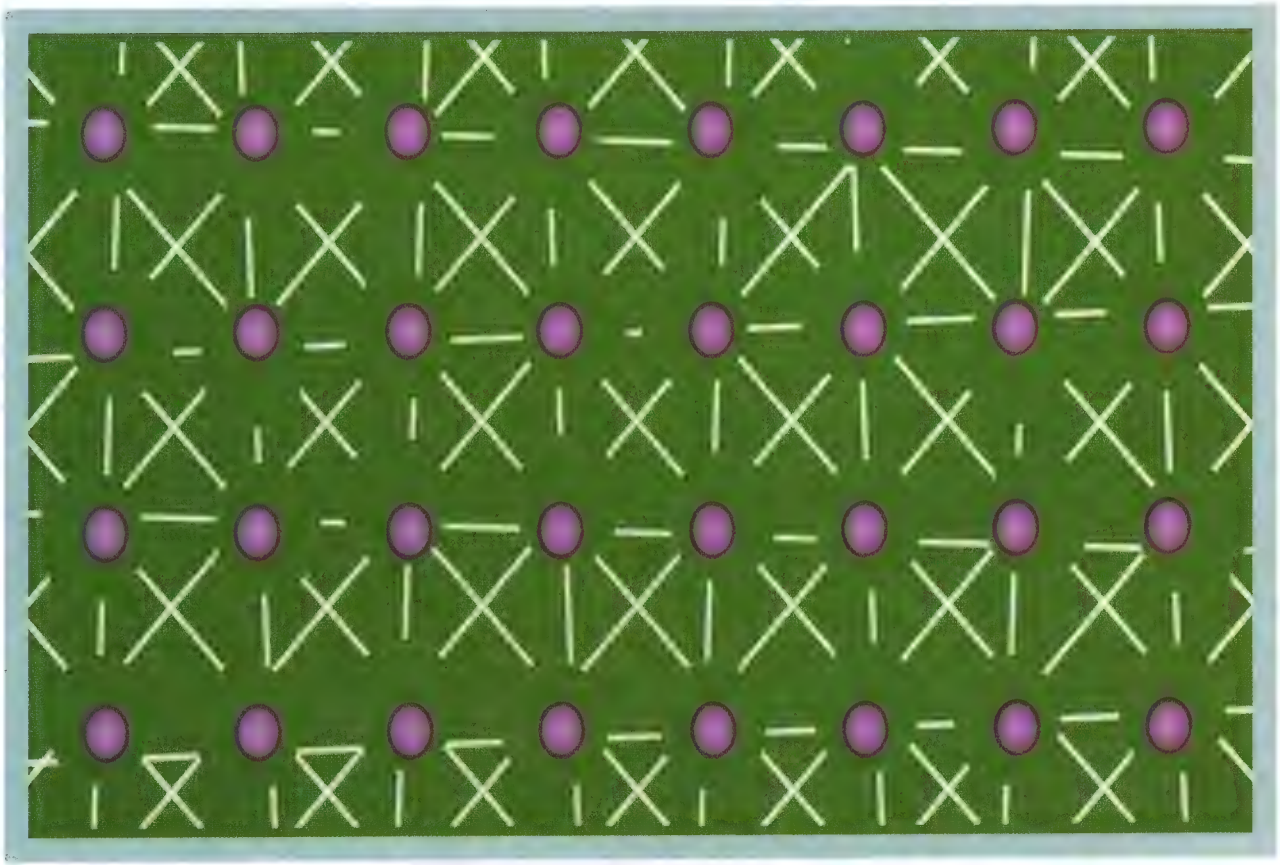
This horse can be seen as a normal horse if you look at it from the right edge, at a low angle

Kitaoka's Soccer Illusion



Would you believe that all the horizontal and vertical lines are straight?

Misaligned Dots



Do the purple balls appear misaligned?
Check your answer with a straightedge.

The Moon Illusion

The moon illusion is one of the great natural illusions. A full moon appears larger on the horizon than when it is seen high in the sky.

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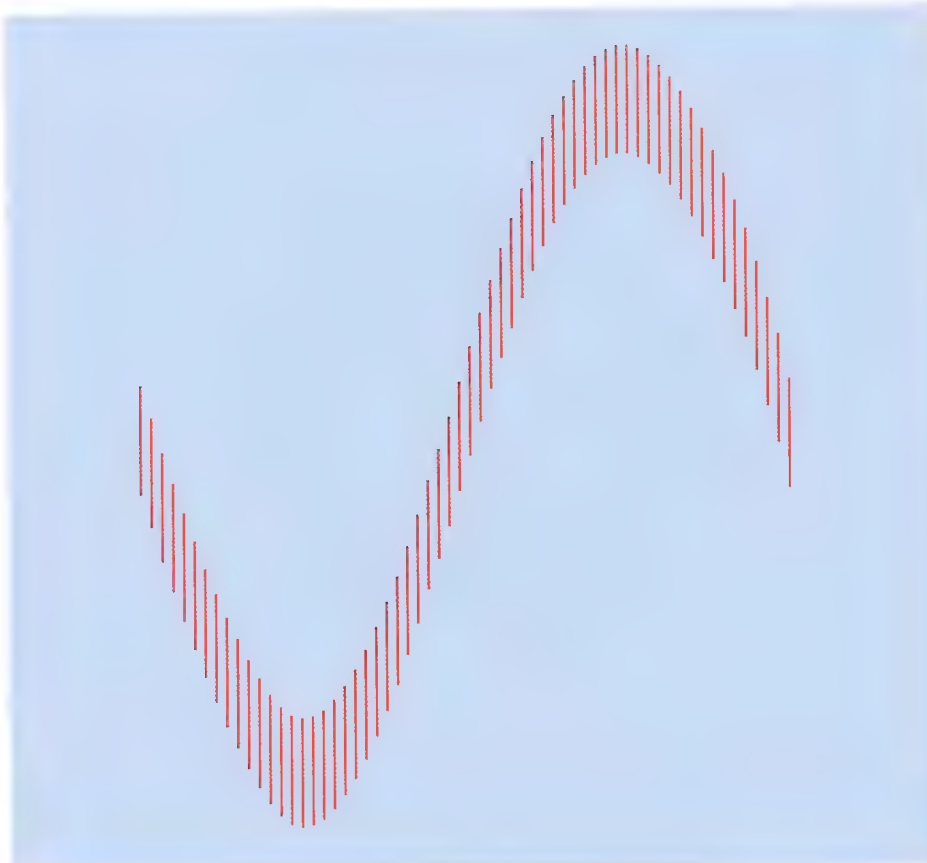

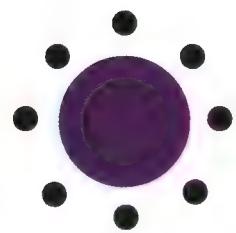

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Al Seckel is the world's leading authority of visual and other types of sensory illusions, and has lectured extensively at the world's most prestigious universities. He has authored several award-winning books and collections of illusions, which explain the science underlying illusions and visual perception.

Please visit his website http //neuro.caltech.edu/~seckel for a listing of all of his books on illusions.

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